JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S3800U/S4800U

S-VHS Hi-Fi

VCR Plus+ ® G3 CABLE BOX CONTROL

Super VHS ET

SPECIFICATIONS

GENERAL

Power requirement	: AC 120 V~, 60 Hz
Power consumption	
Power on	: 20 W
Power off	: 2.5 W
Temperature	
Operating	: 5°C to 40°C (41°F to 104°F)
Storage	: –20°C to 60°C (–4°F to140°F)
Operating position	: Horizontal only
Dimensions (W x H x D)	: 400 x 94 x 281 mm (15-3/4" x 3-3/4" x 11-1/8")
Weight	: 3.4 kg (7.5 lbs)
Format	: S-VHS/VHS NTSC standard
Maximum recording time	
SP	: 210 min. with ST-210 video cassette
EP	: 630 min. with ST-210 video cassette

VIDEO/AUDIO

Signal system	: NTSC-type color signal and EIA monochrome signal, 525 lines/60 fields
Recording/Playback system	: DA-4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	
VHS	: 230 lines
S-VHS	: 400 lines
Frequency range	
Normal audio	: 70 Hz to 10,000 Hz
Hi-Fi audio	: 20 Hz to 20,000 Hz
Input/Output	: RCA connectors (IN x 2, OUT x 1) S-video connectors (IN x 2, OUT x 1)

TUNER

Tuning system	: Frequency-synthesized tuner
Channel coverage	
VHF	: Channels 2–13
UHF	: Channels 14–69
CATV	: 113 Channels
RF output	: Channel 3 or 4 (switchable; preset to Channel 3 when shipped) 75 ohms, unbalanced

TIMER

Clock reference	: Quartz
Program capacity	: 1-year programmable timer/8 programs
Memory backup time	: Approx. 3 min.

ACCESSORIES

Provided accessories	
FOR HR-S4800U	: Infrared remote control unit, "AA" battery x 2, Audio/video cable, S-video cable (4-pin), S-VHS ET labels, Controller
FOR HR-S3800U	: Infrared remote control unit, "AA" battery x 2, Audio/video cable, S-video cable (4-pin), S-VHS ET labels,

Specifications shown are for SP mode unless specified otherwise.
E. & O.E. Design and specifications subject to change without notice.

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The following table lists the differing points between Models (HR-S3800U/U(C) and HR-S4800U(C)) in this series.

	HR-S3800U/U(C)	HR-S4800U/U(C)
FLYING ERASE HEAD	NOT USED	USED
INSERT EDIT	NOT USED	USED
AUDIO DUBBING	NOT USED	USED
FRONT S-VIDEO INPUT TERMINAL	NOT USED	USED
CABLE MOUSE	OPTION	PROVIDEO

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded ( ) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape 3) Spacers 5) Barrier
   2) PVC tubing 4) Insulation sheets for transistors

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

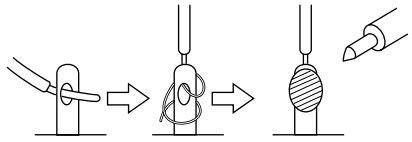


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

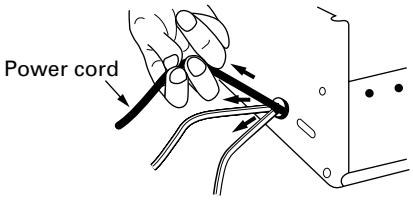


Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

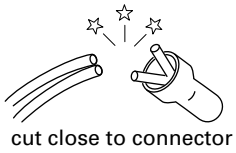


Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

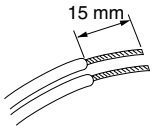


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

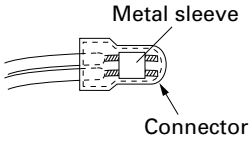


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

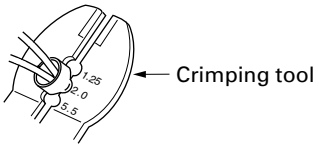


Fig.6

(5) Check the four points noted in Fig.7.

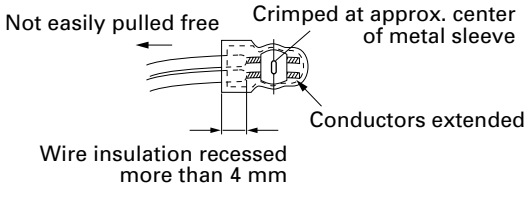

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test
Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance
When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

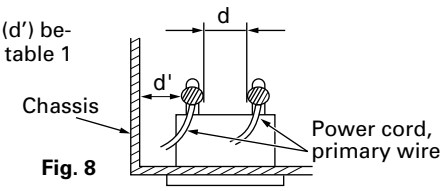


Fig. 8

4. Leakage current test
Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
Measuring Method : (Power ON)
Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

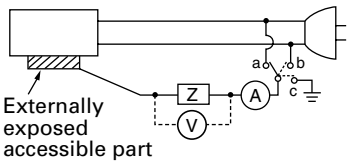


Fig. 9

5. Grounding (Class Ⅰ model only)
Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
Measuring Method:
Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

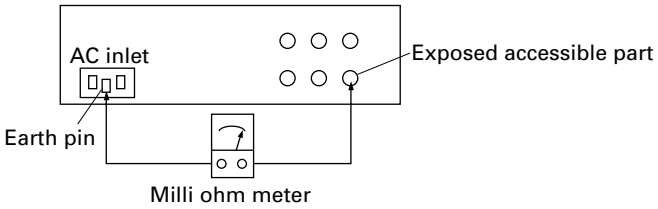


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	1 MΩ ≦ R ≦ 12 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class Ⅱ) AC 1.5 kV 1 minute (Class Ⅰ)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

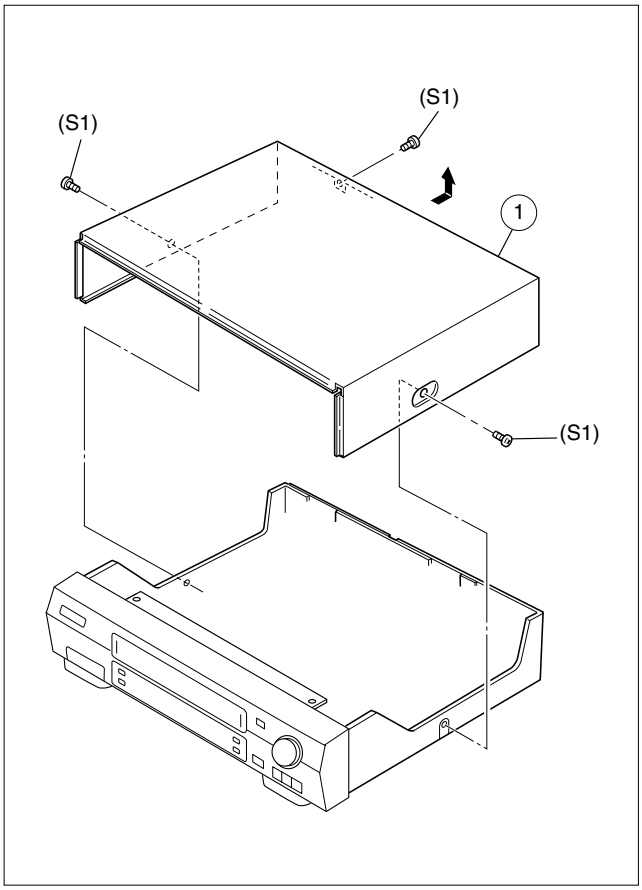


Fig. D1

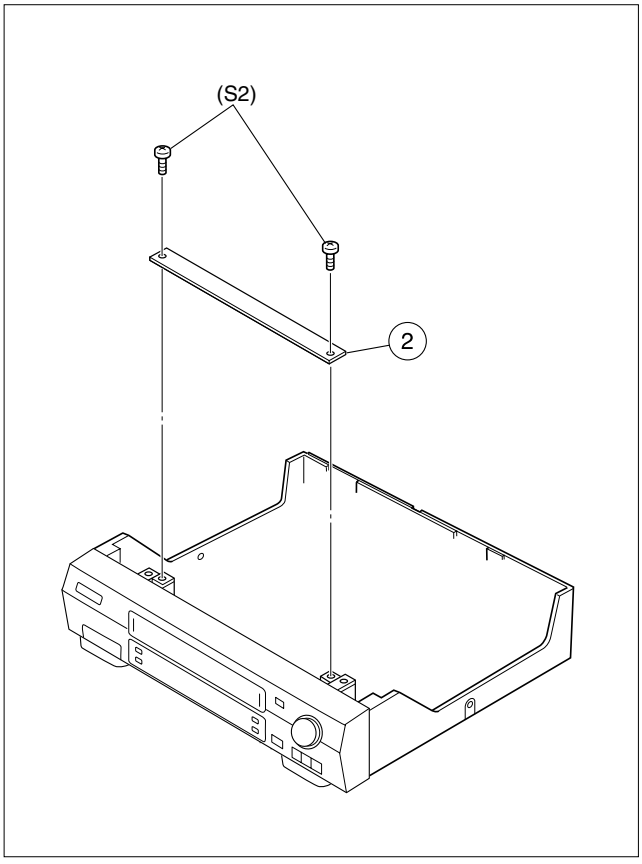


Fig. D2

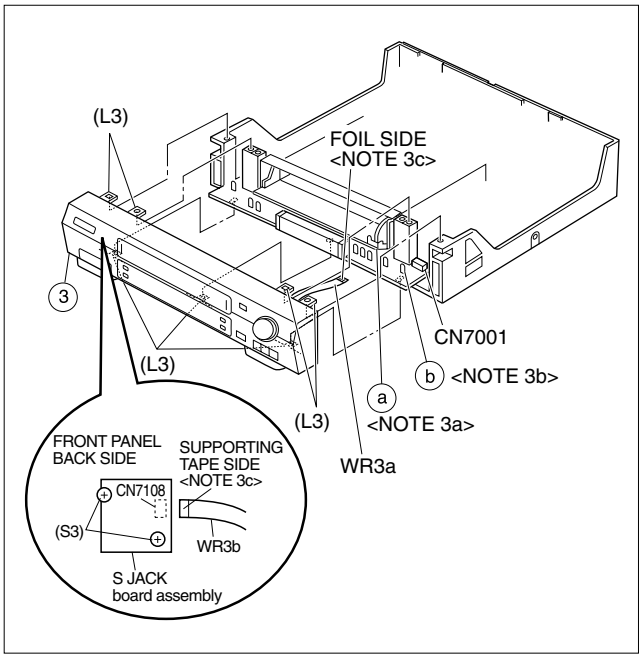


Fig. D3

NOTE: When installing the DRUM assembly, secure the screws (S4a) in the order of ⓐ , ⓑ , ⓒ.

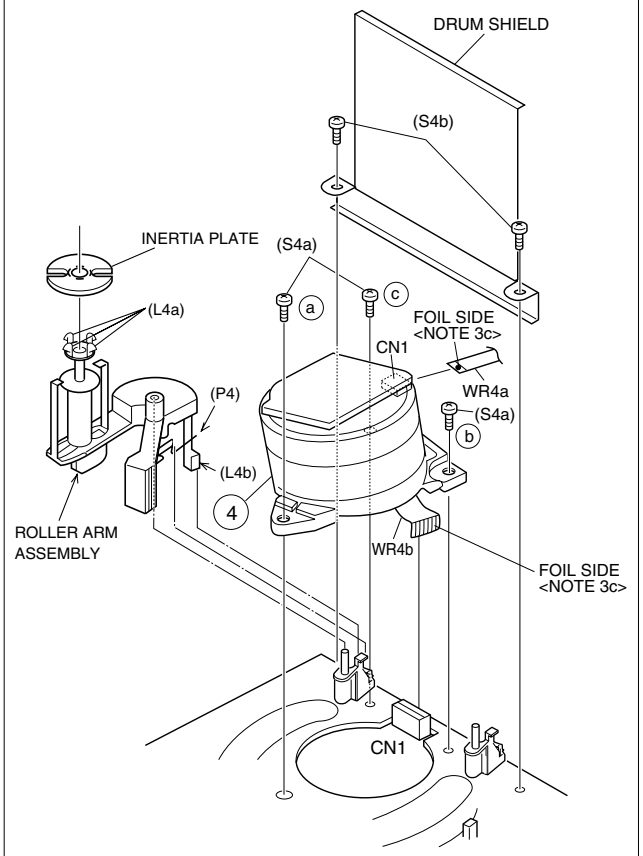


Fig. D4

NOTE: When installing the Mechanism assembly, secure the screws (S5a) in the order of ⓐ , ⓑ.

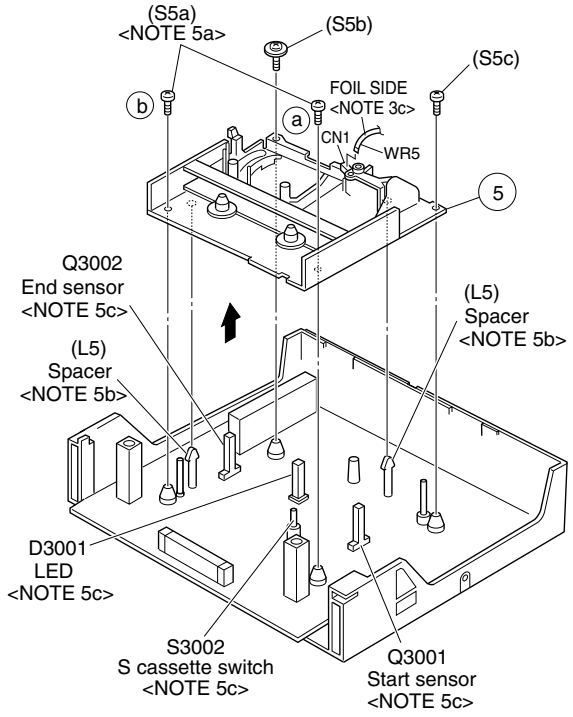


Fig. D5

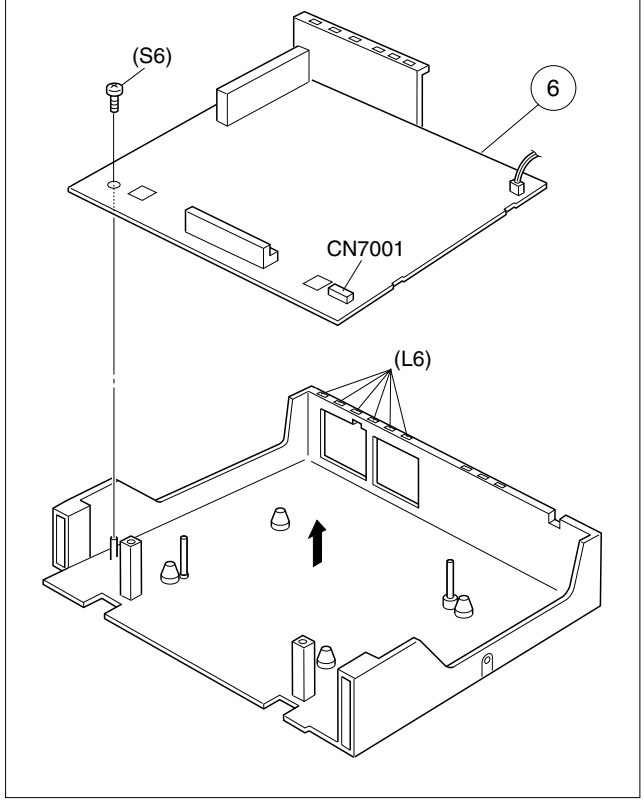


Fig. D6

Procedures for Lowering the Cassette holder assembly

As the mechanism of this unit is integrated with the Housing assembly, the holder must be lowered and the two screws unscrewed when removing the Mechanism assembly.

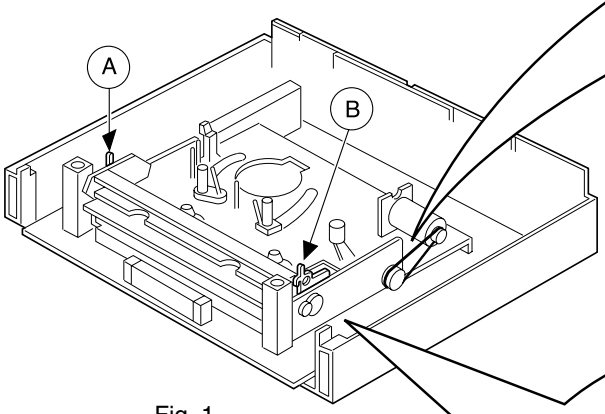


Fig. 1

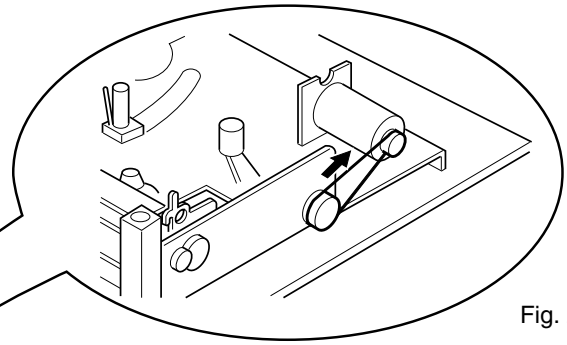


Fig. 2

Turn the loading motor pulley in the direction as indicated by Fig.2. As both Ⓐ and Ⓑ levers are lodged twice, push the levers in the direction as indicated by Fig.3 to release them. When pushing the levers, do it in the order of Ⓐ,Ⓑ,Ⓑ,Ⓐ. When the holder has been lowered, turn the pulley until the cassette holder is securely in place without allowing any up/down movement.

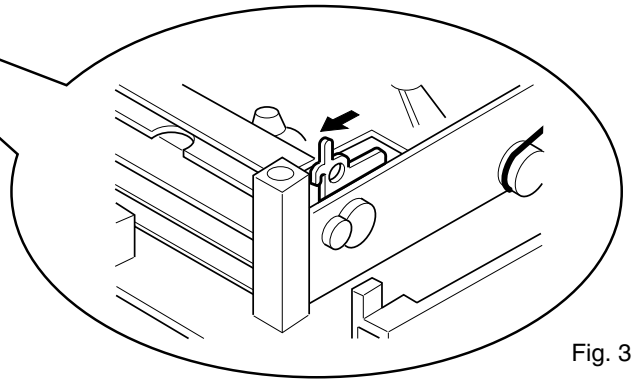


Fig. 3

1.4 SERVICE POSITION

In order to facilitate diagnosis and the repair of the Mechanism assembly, this unit is constructed so as to allow the Mechanism and Main board assemblies to be removed together from the Bottom chassis assembly.

1.4.1 How to take out the Mechanism and Main board assemblies

(1) Remove the Top cover, Bracket, Front panel assembly and S JACK board assembly. (Do not remove the flat wire (WR3b) from CN7108 on the S JACK board assembly.) (See 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(2) Lower the cassette holder, and make the preparations required in order to remove the screws from the Mechanism assembly. (Refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(3) Remove the Roller arm assembly and Drum shield. (See Fig. D4 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(4) Take out 2 screws Ⓐ, 1 screw Ⓑ, 1 screw Ⓒ and 1 screw Ⓓ as shown in Fig. 1-4-1.

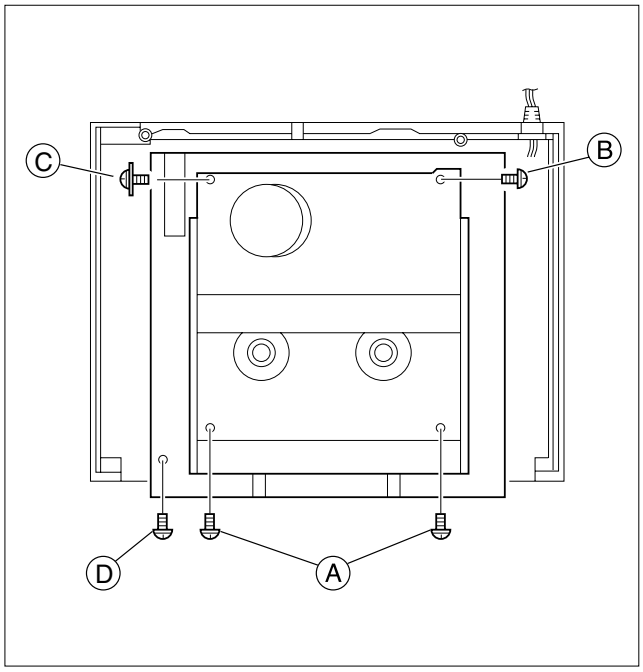


Fig. 1-4-1

(5) Remove the Main board and Mechanism assemblies together while holding the edge of the Main board assembly. At this stage be careful of the power cord and prongs of the jacks on the back side. (See Fig. 1-4-2.)

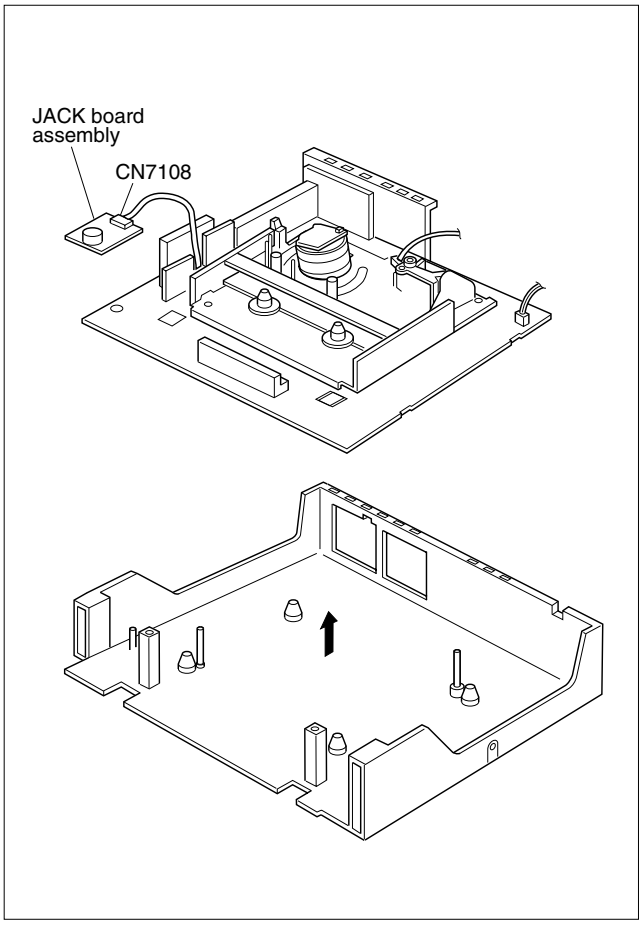


Fig. 1-4-2

(6) Connect the power cord to the wall socket, and lift the cassette holder.
(Before turning on the power make sure that there is nothing which may produce a short circuit, such as faulty soldering.)
(7) When performing a diagnosis or repair of the Main board assembly with a cassette tape in place, turn on the power, insert a cassette tape, and turn over the Main board and Mechanism assemblies together.

NOTES: • *When carrying out diagnosis and repair of the Main board assembly in the service position, be sure to ground both the Main board and Mechanism assemblies.*

If they are improperly grounded, there may be noise on the playback picture or the FDP counter display may move even when the mechanism is kept in an inoperative status.

• *When performing diagnostics of the tape playback or recording condition in the "SERVICE POSITION", enter the desired mode before turning the set upside down, and do not change the mode during diagnostics while the set is placed upside down. If you want to switch the mode, turn the set to the normal position.*

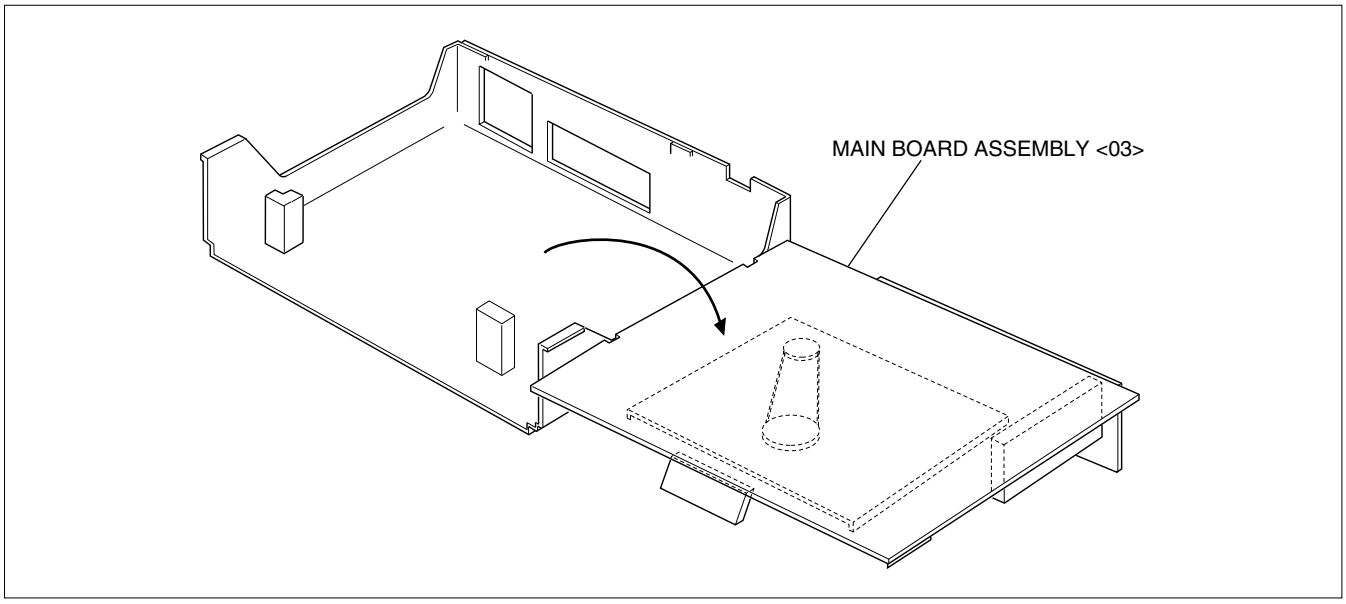


Fig. 1-4-3

1.5 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.5.1 How to set the "MECHANISM SERVICE MODE"

(1) Disconnect VCR from AC.
(2) Connect TPGND and TP7001(TEST) on the Main board assembly with a jump wire.
(3) Connect VCR to AC.
(4) Press the POWER button.
(5) With lock levers ⒶⒷ on the left and right of the Cassette holder assembly pulled toward the front, slide the holder in the same direction as the cassette insertion direction. (For the positions of lock levers ⒶⒷ, refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(6) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.

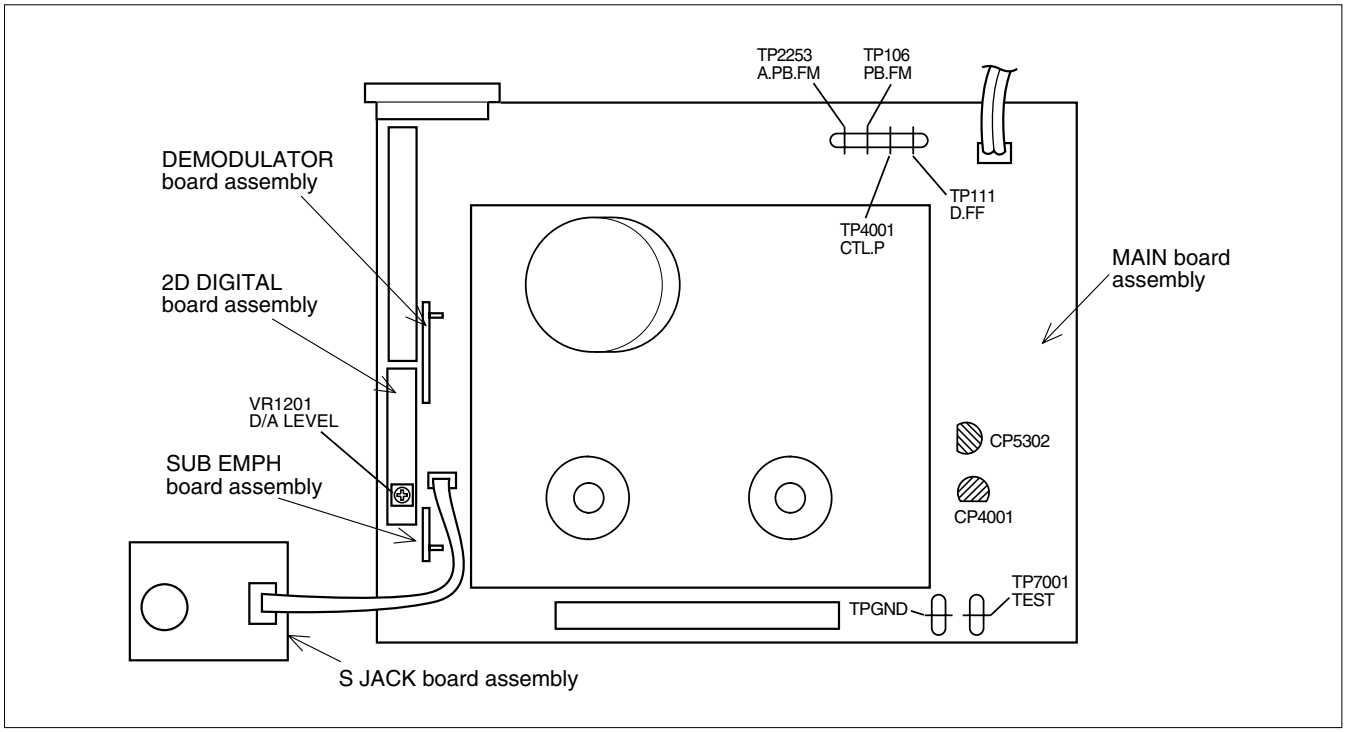
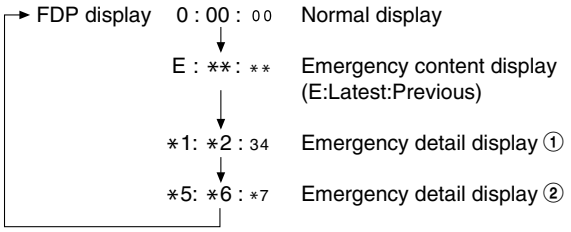


Fig. 1-5-1

1.6 EMERGENCY DISPLAY FUNCTION

This unit has a function for storing the history of the past two emergencies (EMG) and displaying them on each FDP. With the status of the VCR and mechanism at the moment an emergency occurred can also be confirmed.

FDP display switching



NOTES: • *The emergency detail display ① ② show the information on the latest emergency. It becomes " – – : – – : – –" when there is no latest emergency record.*
• *When using the Jig RCU, set its custom code to match the custom code of the VCR.*

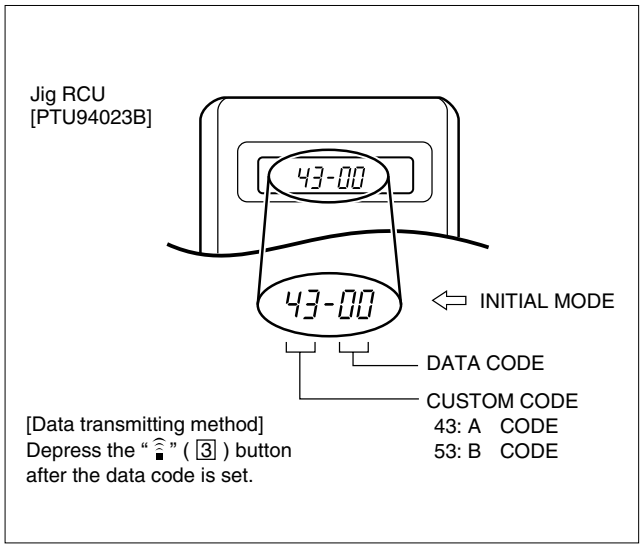
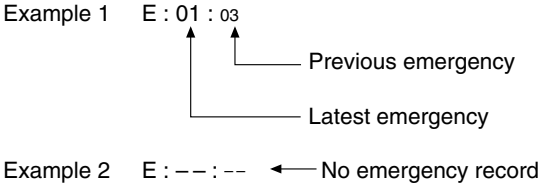


Fig. 1-6-1 Jig RCU

1.6.1 Displaying the emergency information

(1) Transmit the code "59" from the Jig RCU.
The FDP shows the emergency content in the form of "E:**:**".



NOTE: • *For the emergency content, see "1.6.3 Emergency content description".*

(2) Transmit the code "59" from the Jig RCU again.
The FDP shows the emergency detail information ① in the form of "*1 : *2 : 34".
*1 : Deck operation mode at the moment of emergency
*2 : Mechanism operation mode at the moment of emergency
3– : Mechanism sensor information at the moment of emergency
–4 : Mechanism mode position at the moment of emergency

NOTE: • *For the emergency detail information ① , see "1.6.4 Emergency detail information ①".*

(3) Transmit the code "59" from the Jig RCU once again.
The FDP shows the emergency detail information ② in the form of "*5 : *6 : *7".
*5 : Type of the cassette tape in use ①.
*6 : Winding position of the cassette tape in use
*7 : Type of the cassette tape in use ② (Winding area)

NOTE: • *For the emergency detail information ② , see "1.6.5 Emergency detail information ②".*

(4) Transmit the code "59" from the Jig RCU once again to reset the display.

1.6.2 Clearing the emergency history

(1) Display the emergency history.
(2) Transmit the code "36" from the Jig RCU.
(3) Reset the emergency display.

(Y292-MN03e)

1.6.3 Emergency content description

NOTE: *Emergency contents "E08/E09" are for the model with Dynamic Drum (DD).*

FDP	CONTENT	CAUSE
E01: Loading EMG	When the mechanism mode cannot be changed to another mode even when the loading motor has rotated for more than 4 seconds in the loading direction, [E:01] is identified and the power is turned off.	① The mechanism is locked in the middle of mode transition. ② The mechanism is locked at the loading end due to the encoder position reading error during mode transition. ③ Power is not supplied to the loading MDA.
E02: Unloading EMG	When the mechanism mode cannot be changed to another mode even when the loading motor has rotated for more than 4 seconds in the unloading direction, [E:02] is identified and the power is turned off.	① The mechanism is locked in the middle of mode transition. ② The mechanism is locked at the unloading end due to the encoder position reading error during mode transition. ③ Power is not supplied to the loading MDA.
E03: Take Up Reel Pulse EMG	When the take-up reel pulse has not been generated for more than 4 seconds in the capstan rotating mode, [E:03] is identified, the pinch rollers are turned off and stopped, and the power is turned off. However, the reel EMG is not detected in STILL/SLOW modes.	① The take-up reel pulse is not generated in the FWD transport modes (PLAY/FWD SEARCH/FF, etc.) because; 1) The idler gear is not meshed with the take-up reel gear; 2) The idler gear is meshed with the take-up reel gear, but incapable of winding due to too large mechanical load (abnormal tension); 3) The take-up reel sensor does not output the FG pulse. ② The supply reel pulse is not generated in the REV transport modes (REV SEARCH/REW, etc.) because; 1) The idler gear is not meshed with the supply reel gear. 2) The idler gear is meshed with the supply reel gear, but incapable of winding due to too large a mechanical load (abnormal tension); 3) The supply reel sensor does not output the FG pulse. ③ Power is not supplied to the reel sensors.
E04: Drum FG EMG	When the drum FG pulse has not been input for more than 3 seconds in the drum rotating mode, [E:04] is identified, the pinch rollers are turned off and stopped, and the power is turned off.	① The drum could not start or the drum rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high; 2) The tape is damaged or a foreign object (grease, etc.) adheres to the tape. ② The drum FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (hall device) of the drum is faulty. ③ The drum control voltage (DRUM CTL V) is not supplied to the MDA. ④ Power is not supplied to the drum MDA.
E05: Cassette Eject EMG	When the eject operation does not complete in 3 seconds after the start, [E:05] is identified, the pinch rollers are turned off and stopped, and the power is turned off. When the cassette insertion operation does not complete in 3 seconds after the start, the cassette is ejected. In addition, when the operation does not complete within 3 seconds after the start, [E:05] is also identified and the power is turned off immediately.	① The cassette cannot be ejected due to a failure in the drive mechanism of the housing. ② When the housing load increases during ejection, the loading motor is stopped because of lack of headroom in its drive torque. Housing load increasing factors: Temperature environment (low temperature, etc.), mechanism wear or failure. ③ The sensor/switch for detecting the end of ejection are not functioning normally. ④ The loading motor drive voltage is lower than specified or power is not supplied to the motor (MDA). ⑤ When the user attempted to eject a cassette, a foreign object (or perhaps the user's hand) was caught in the opening of the housing.
E06: Capstan FG EMG	When the capstan FG pulse has not been generated for more than 1 second in the capstan rotating mode, [E:06] is identified, the pinch rollers are turned off and stopped, and the power is turned off.However, the capstan EMG is not detected in STILL/SLOW/FF/REW modes.	① The capstan could not start or the capstan rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high (mechanical lock); 2) The tape is damaged or a foreign object (grease, etc.) is adhered to the tape (occurrence of tape entangling, etc.). ② The capstan FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (MR device) of the capstans is faulty. ③ The capstan control voltage (CAPSTAN CTL V) is not supplied to the MDA. ④ Power is not supplied to the capstan MDA.
E07: SW Power Short-Circuit EMG	When short-circuiting of the SW power supply with GND has lasted for 0.5 second or more, [E:07] is identified, all the motors are stopped and the power is turned off.	① The SW 5 V power supply circuit is shorted with GND. ② The SW 12 V power supply circuit is shorted with GND.
E08: DD Initialized (Absolute Position Sensor) EMG	When DD tilting does not complete in 4 seconds, [E:08] is identified, the tilt motor is stopped and the power is turned off.	① The absolute value sensor is defective. (The soldered parts have separated.) ② The pull-up resistor at the absolute sensor output is defective. (The soldered parts have separated.) ③ Contact failure or soldering failure of the pins of the connector (board-to-board) to the absolute value sensor. ④ The absolute value sensor data is not sent to the System Controller CPU.
E09: DD FG EMG	When the DD FG pulse is not generated within 2.5 seconds, [E:09] is identified, the tilt motor is stopped and the power is turned off.	① The FG sensor is defective. (The soldered parts have separated.) ② The pull-up resistor at the FG sensor output is defective. (The soldered parts have separated.) ③ Contact failure or soldering failure of the pins of the connector (board-to-board) to the FG sensor. ④ The power to the sensor is not supplied. (Connection failure/soldering failure) ⑤ The FG pulse is not sent to the System Controller CPU. ⑥ The tilt motor is defective. (The soldered parts have separated.) ⑦ The drive power to the tilt motor is not supplied. (Connection failure/soldering failure) ⑧ The tilt motor drive MDA - IC is defective. ⑨ Auto-recovery of the DD tilting cannot take place due to overrun.
E0A: Supply Reel Pulse EMG	When the supply reel pulse has not been generated for more than 10 seconds in the capstan rotating mode, [E:0A] is identified and the cassette is ejected (but the power is not turned off). However, note that the reel EMG is not detected in the SLOW/STILL mode.	① The supply reel pulse is not generated in the FWD transport mode (PLAY/FWD SEARCH/FF, etc.) because; 1) PLAY/FWD or SEARCH/FF is started while the tape in the inserted cassette is cut in the middle; 2) A mechanical factor caused tape slack inside and outside the supply reel side of the cassette shell. In this case, the supply reel will not rotate until the tape slack is removed by the FWD transport, so the pulse is not generated until then; 3) The FG pulse output from the supply reel sensor is absent. ② The take-up reel pulse is not generated in the REV transport mode (REV SEARCH/REW, etc.). 1) REV SEARCH/REW is started when the tape in the inserted cassette has been cut in the middle; 2) A mechanical factor caused tape slack inside and outside the take-up reel side of the cassette shell. In this case, the supply reel will not rotate until the tape slack is removed by the REV transport, so the pulse will not be generated until that time; 3) The FG pulse output from the take-up reel sensor is absent. ③ The power to a reel sensor is not supplied.
EU1: Head clog warning	Presupposing the presence of the control pulse output in the PLAY mode, when the value obtained by mixing the two V.FM output channels (without regard to the A.FM output) has remained below a certain threshold level for more than 10 seconds, [E:U1] is identified and recorded in the emergency history. During the period in which a head clog is detected, the FDP and OSD repeat the "3-second warning display" and "7-second noise picture display" alternately. EMG code : "E:U1" / FDP : "U:01" / OSD : "Try cleaning tape." The head clog warning is reset when the above-mentioned threshold has been exceeded for more than 2 seconds or the mode is changed to another mode than PLAY.	

Table 1-6-1

1.6.4 Emergency detail information ①

The status (electrical operation mode) of the VCR and the status (mechanism operation mode/sensor information) of the mechanism in the latest emergency can be confirmed based on the figure in EMG detail information ①.

[FDP display]

∗1 : ∗2 : 3 4

∗1 : Deck operation mode at the moment of emergency
∗2 : Mechanism operation mode at the moment of emergency
3– : Mechanism sensor information at the moment of emergency
–4 : Mechanism mode position at the moment of emergency

∗1 : Deck Operation Mode

Display	Deck Operation Mode
00	Mechanism being initialized
01	STOP with pinch roller pressure off (or tape present with P.OFF)
02	STOP with pinch roller pressure on
03	POWER OFF as a result of EMG
04	PLAY
0C	REC
10	Cassette ejected
20	FF
21	Tape fully loaded, START sensor ON, short FF
22	Cassette identification FWD SEARCH before transition to FF (SP x7-speed)
24	FWD SEARCH (variable speed) including x2-speed
2C	INSERT REC
40	REW
42	Cassette identification REV SEARCH before transition to REW (SP x7-speed)
44	REV SEARCH (variable speed)
4C	AUDIO DUB
6C	INSERT REC (VIDEO + AUDIO)
84	FWD STILL/SLOW
85	REV STILL/SLOW
8C	REC PAUSE
8D	Back spacing
8E	Forward spacing (FWD transport mode with BEST function)
AC	INSERT REC PAUSE
AD	INSERT REC Back spacing
CC	AUDIO DUB PAUSE
CD	AUDIO DUB Back spacing
EC	INSERT REC (VIDEO + AUDIO) PAUSE
ED	INSERT REC (VIDEO + AUDIO) Back spacing

∗2 : Mechanism Operation Mode

Display	Mechanism Operation Mode
00	Command standby (Status without executing command)
02	POWER OFF by EMG occurrence
04	Moving to the adjacent position in the LOAD direction
06	Moving to the adjacent position in the UNLOAD direction
08	Cassette ejection being executed
0A	Cassette insertion being executed
0C	Tape being loaded
0E	Tape being unloaded
10	Mode transition to STOP with pinch roller compression ON
12	Mode transition to STOP with pinch roller compression OFF
14	Mode transition to STOP with pinch roller compression OFF as a result of POWER OFF
16	Mode transition to STOP with pinch roller compression ON as a result of POWER ON
18	Mode transition to PLAY
1A	Mode transition to FWD SEARCH
1C	Mode transition to REC
1E	Mode transition to FWD STILL/SLOW
20	Mode transition to REV STILL/SLOW
22	Mode transition to REV SEARCH
24	Mode transition from FF/REW to STOP
26	Mode transition to FF
28	Mode transition to REW
2A	4 sec. of REV as a result of END sensor going ON during loading
2C	Short FF/REV as a result of tape sensor going ON during unloading
2E	Mechanism position being corrected due to overrun
80	Mechanism in initial position (Dummy command)

3– : Mechanism Sensor Information

Display	Mechanism Sensor Information			
	S-VHS SW	REC SAFETY SW	START SENSOR	END SENSOR
0–	VHS	Tab broken	ON	ON
1–	VHS	Tab broken	ON	OFF
2–	VHS	Tab broken	OFF	ON
3–	VHS	Tab broken	OFF	OFF
4–	VHS	Tab present	ON	ON
5–	VHS	Tab present	ON	OFF
6–	VHS	Tab present	OFF	ON
7–	VHS	Tab present	OFF	OFF
8–	S-VHS	Tab broken	ON	ON
9–	S-VHS	Tab broken	ON	OFF
A–	S-VHS	Tab broken	OFF	ON
B–	S-VHS	Tab broken	OFF	OFF
C–	S-VHS	Tab present	ON	ON
D–	S-VHS	Tab present	ON	OFF
E–	S-VHS	Tab present	OFF	ON
F–	S-VHS	Tab present	OFF	OFF

–4 : Mechanism Mode Position

Display	Mechanism Mode Position
-0	Initial value
-1	EJECT position
-2	Housing operating
-3	U/L STOP position
-4	Tape being loaded/unloaded (When the pole base is located on the front side of the position just beside the drum)
-5	Tape being loaded/unloaded (When the pole base is located on the rear side of the position just beside the drum)
-6	Pole base compressed position
-7	FF/REW position
-8	Between FF/REW and STOP with pinch roller compression ON
-9	STOP with pinch roller compression OFF
-A	Between STOP with pinch roller compression OFF and REV
-B	REV (REV STILL/SLOW) position
-C	Between REV and FWD
-D	FWD (FWD STILL/SLOW) position
-E	Between FWD and PLAY
-F	PLAY position

1.6.5 Emergency detail information ②

The type of the cassette tape and the cassette tape winding position can be confirmed based on the figure in EMG detail information ②.

[FDP display]

*5 : *6 : *7

*5 : Type of the cassette tape in use ①
*6 : Winding position of the cassette tape in use
*7 : Type of the cassette tape in use ② (Winding area)

NOTE: • *EMG detail information ② is the reference information stored using the remaining tape detection function of the cassette tape. As a result, it may not identify cassette correctly when a special cassette tape is used or when the tape has variable thickness.*

***5 : Cassette tape type ①**

Display	Cassette Tape Type ①
00	Cassette type not identified
16	Large reel/small reel (T-0 to T-15/T-130 to T-210) not classified
82	Small reel, thick tape (T-120) identified /thin tape (T-140) identified
84	Large reel (T-0 to T-60) identified
92	Small reel, thick tape (T-130) identified /thin tape (T-160 to T-210) identified
93	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) not classified
C3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
D3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
E1	C cassette, thick tape (TC-10 to TC-20) identified
E2	Small reel, thick tape (T-0 to T-100) identified
E9	C cassette, thin tape (TC-30 to TC-40) identified
F1	C cassette, thick tape/thin tape (TC-10 to TC-40) not classified

NOTES: • *Cassette tape type ① is identified a few times during mode transition and the identification count is variable depending on the cassette tape type. If an EMG occurs in the middle of identification, the cassette tape type may not be able to be identified.*
• *If other value than those listed in the above table is displayed, the cassette tape type is not identified.*

***6 : Cassette tape winding position**

The cassette tape winding position at the moment of EMG is displayed by dividing the entire tape (from the beginning to the end) in 22 sections using a hex number from "00" to "15".

"00" : End of winding
"15" : Beginning of winding
"FF" : Tape position not identified

***7 : Cassette tape type ② (Winding area)**

Display	Cassette Tape Type ②	
00	Cassette type not identified	
07	Small reel, thick tape	T-5
08 - 0E	C cassette, thick tape	TC-10
09 - 15	C cassette, thick tape	TC-20P
0A - 0B	Small reel, thick tape	T-20
0A - 16	C cassette, thin tape	TC-30
0A - 16	C cassette, thin tape	TC-40
0D - 0F	Small reel, thick tape	T-40
11 - 14	Small reel, thick tape	T-60
15 - 18	Small reel, thick tape	T-80/DF-160
17 - 1A	Small reel, thick tape	T-80/DF-180
19 - 1D	Small reel, thick tape	T-100
1D - 21	Small reel, thick tape	T-120/DF-240
1E - 1F	Small reel, thin tape	T-140
1F - 23	Small reel, thick tape	T-130
21 - 23	Small reel, thin tape	T-160
21 - 23	Small reel, thin tape	T-168
22 - 24	Small reel, thick tape	DF-300
22 - 24	Small reel, thin tape	T-180/DF-380
22 - 24	Small reel, thin tape	T-210/DF-420
22 - 23	Large reel	T-5
23 - 24	Large reel	T-10
25 - 26	Large reel	T-20
27 - 29	Large reel	T-30
29 - 2B	Large reel	T-40
2D - 2F	Large reel	T-60

NOTE: • *The values of cassette tape type ② in the above table are typical values with representative cassette tapes.*

1.7 SYSCON CIRCUIT

1.7.1 Syscon CPU pin function (IC3001)

PIN NO.	LABEL	IN/OUT	FUNCTION
1	SP_FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
2	TU_FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
3	PAUSE/COMPU_IN	IN	REMOTE PAUSE INPUT/NC
4	BS_ANT_ON(H)	-	NC
5	RC	IN	REMOTE CONTROL DATA INPUT
6	OPE_SW	-	NC
7	TU_CLK	OUT	CLOCK FOR DATA TRANSFER TO THE TUNER UNIT
8	TU_DATA	OUT	TUNING DATA
9	TU_CE	OUT	CHIP ENABLE OF THE TUNER UNIT
10	LMC1	OUT	LOADING MOTOR DRIVE (1)
11	LMC2	OUT	LOADING MOTOR DRIVE (2)
12	EP(H)	-	NC
13	RMO/R-Y_REV/PAL_ET_REC/JUST(L)	OUT	REMOTE CONTROL OUTPUT FOR CABLE BOX/NC/NC/NC
14	BIL_SEL	-	NC
15	CONV_CTL(H)	OUT	R/F CONVERTER ON/OFF (ON:H, OFF:L)
16	CTL_GAIN	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCHING
17	I2C_DATA_A/V	IN/OUT	I/O DATA
18	I2C_CLK_A/V	OUT	SERIAL DATA TRANSFER CLOCK
19	SP_SHORT(H)/FLY_ON(H)	OUT	MODE SELECT/REC TIMING CONTROL (FLY ERASE ON:H) [HR-S4800U/U(C)]
20	EP_SHORT(H)/FLY_REC_ST(H)	OUT	MODE SELECT/FLY REC START:H [HR-S4800U/U(C)]
21	SB_GAIN	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
22	CAP_REV(L)	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)
23	D.FF	OUT	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
24	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
25	RESET	-	RESET TERMINAL (RESET ON:L)
26	A.FF	OUT	AUDIO FF OUTPUT
27	N.REC_ST(H)	OUT	NORMAL AUDIO SOUND RECORDING START
28	S.CASSETTE	IN	DETECTION SIGNAL FOR SVHS CASSETTE (SVHS:H)
29	SLOW_PULSE	OUT	RECEIVING TIMING OUTPUT OF SPECIAL PLAYBACK PICTURE
30	H.REC_ST(H)	OUT	HIFI AUDIO SOUND RECORDING START
31	TU_MUTE(H)	OUT	TUNER AUDIO MUTE CONTROL (MUTE:H)
32	CNR(H)/VPCTL	-	NC
33	CAP_CTL_V	OUT	CAPSTAN MOTOR CONTROL
34	DRUM_CTL_V	OUT	DRUM MOTOR CONTROL
35	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE:H)
36	VDD	-	SYSTEM POWER
37	X OUT	-	MAIN SYSTEM CLOCK (14.32MHz)
38	X IN	-	MAIN SYSTEM CLOCK (14.32MHz)
39	VSS	-	GND
40	XC IN	-	TIMER CLOCK (32.768kHz)
41	XC OUT	-	TIMER CLOCK (32.768kHz)
42	CLK SEL	IN	SELECT FOR BACKUP METHOD (LITHIUM OR E.CAP):H
43	P.MUTE(L)	OUT	PICTURE MUTE CONTROL (MUTE:L)
44	V_UP(H)	-	NC
45	V.REF	-	NC
46	P.CTL(H)	OUT	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
47	VIDEO_OUT	OUT	COMPOSITE VIDEO SIGNAL OUTPUT
48	VSS2	-	GND
49	CVIN	IN	COMPOSITE VIDEO SIGNAL INPUT
50	SYN_IN	IN	COMPOSITE SYNCHRONIZING SIGNAL FOR SERVO, VERTICAL SYNCHRONIZING SIGNAL FOR OSD

PIN NO.	LABEL	IN/OUT	FUNCTION
51	VDD2	-	SYSTEM POWER
52	AFCC	IN	FILTER INPUT FOR HORIZONTAL SYNCHRONIZING OF OSD CHARACTER
53	AFCLPF	OUT	FILTER INPUT FOR HORIZONTAL SYNCHRONIZING OF OSD CHARACTER
54	FSCI/BIT_IN(H)	-	NC
55	FSCLPF/BS_P.CTL	-	NC
56	I2C_DATA	IN/OUT	I/O DATA FOR MEMORY IC
57	I2C_CLK/TEST	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
58	CHARAE	OUT	OSD CHARACTER DATA (FRINGE) OUTPUT
59	LMC3	OUT	LOADING MOTOR DRIVE(3)
60	CHARAM	OUT	OSD CHARACTER DATA OUTPUT
61	LSA	IN	MECHANISM MODE DETECT(A)
62	LSB	IN	MECHANISM MODE DETECT(B)
63	LSC	IN	MECHANISM MODE DETECT(C)
64	S.DET	IN	DETECTION SIGNAL FOR S-VHS MODE (S-VHS PB:H)
65	D.FG_IN	IN	DRUM FG PULSE INPUT
66	D.PG_IN	IN	DRUM PICKUP PULSE INPUT(SWITCHING PULSE)
67	C.FG_AMP_OUT	OUT	SET-UP OUTPUT FOR CAPSTAN FG AMPLIFICATION FACTOR
68	C.FG_IN	IN	CAPSTAN FG PULSE INPUT
69	AMP_VREF_OUT	OUT	AMP CIRCUIT REFERENCE VOLTAGE OUTPUT
70	AMP_VREF_IN	IN	AMP CIRCUIT REFERENCE VOLTAGE INPUT
71	AVSS	-	GND
72	AMP_C	IN	CAPACITOR CONNECT TERMINAL FOR CTL AMP CIRCUIT
73	AVCC	-	SYSTEM POWER
74	CTL_+	IN/OUT	CTL(+) SIGNAL
75	CTL_-	IN/OUT	CTL(-) SIGNAL
76	CTL_AMP_OUT	OUT	CTL PULSE OUTPUT
77	LOCK(L)	IN	TUNING PLL LOCK DETECT:L
78	BS_ANT/KILLER_OUT	-	NC
79	START_SENSOR	IN	START SENSOR
80	FULLE.ON(H)/3.58NTSC(H)/GR_ON(H)	OUT	FULL ERASE HEAD ON:H/NC/NC
81	REC_SAFETY	IN	REC SAFETY SWITCH DETECT (SW ON:L)
82	COMPU_OUT/WIDE_DET	OUT	A/V COMPULINK OUTPUT/NC
83	VIDEO_ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
84	A_ENV/ND(L)	IN	AUDIO PB FM ENV.INPUT/NON HiFi MODE: L
85	END_SENSOR	IN	END SENSOR
86	AFC/JUST_CLK	IN	TUNING CHECK/NC
87	LED	-	NC
88	IND(L)	-	NC
89	IND(R)	-	NC
90	POWER_DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
91	P.SAVE(L)	-	NC
92	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL (REC:H)
93	FH625(L)/TRICK(H)	-	NC
94	PROTECT	IN	DETECTION SIGNAL FOR SW. POWER SUPPLY
95	STB	OUT	STROBE (FOR FDP DRIVER)
96	S.CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FROM THE FDP DRIVER TO THE ON-SCREEN IC
97	S_DATA_FRSYS	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN IC
98	S_DATA_TOSYS	IN	SERIAL DATA TRANSFER OUTPUT FROM THE ON-SCREEN IC TO THE FDP DRIVER
99	JSA	IN	INPUT FOR THE JOG SHUTTLE
100	JSB	IN	INPUT FOR THE JOG SHUTTLE

SECTION 2
MECHANISM ADJUSTMENT

2.1 BEFORE STARTING REPAIR AND ADJUSTMENT

2.1.1 Precautions

(1) Unplug the power cable of the main unit before using your soldering iron.
(2) Take care not to cause any damage to the conductor wires when plugging and unplugging the connectors.
(3) Do not randomly handle the parts without identifying where the trouble is.
(4) Exercise enough care not to damage the lugs, etc. during the repair work.
(5) When installing the front panel assembly, be sure to hook the lug on the back side of the cassette door to the door opener of the cassette holder. If this operation is neglected it will not be possible to remove the cassette when ejecting because the housing door cannot be opened.

2.1.2 Checking for Proper Mechanical Operations

Enter the mechanism service mode when you want to operate the mechanism when no cassette is loaded. (See 1.5 MECHANISM SERVICE MODE.)

2.1.3 Manually Removing the Cassette Tape

1. In case of electrical failures

If you cannot remove the cassette tape which is loaded because of any electrical failure, manually remove it by taking the following steps.

(1) Unplug the power cable and remove the top cover, bracket and front panel assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(2) Unload the cassette by manually turning the loading motor of the mechanism assembly toward the front. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig.2-1-1.)
(3) Bring the pole base assembly (supply or take-up side) to a pause when it reaches the position where it is hidden behind the cassette tape.
(4) Move the top guide toward the drum while holding down the lug Ⓐ of the bracket retaining the top guide. Likewise hold part Ⓑ down and remove the top guide. Section Ⓒ of the top guide is then brought under the cassette lid. Then remove the top guide by pressing the whole cassette tape down. (See Fig.2-1-2.)
(5) Remove the cassette tape by holding both the slackened tape and the cassette lid.
(6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

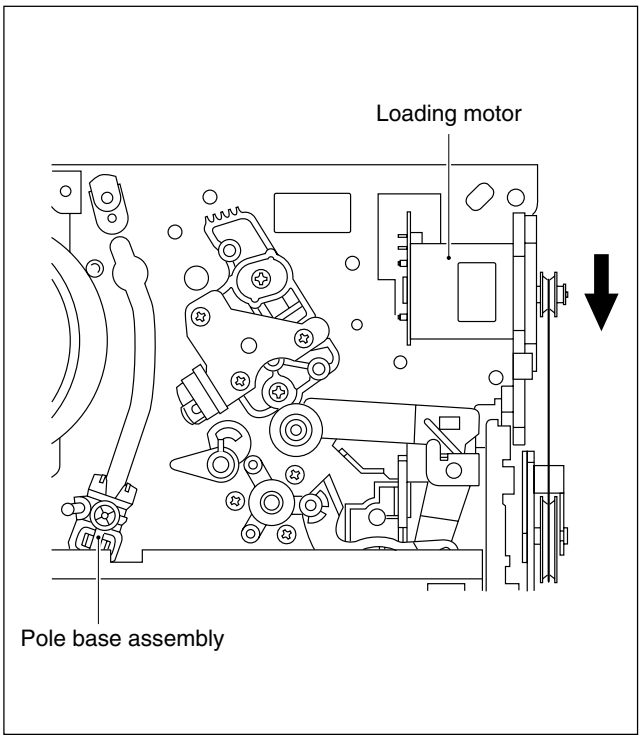


Fig. 2-1-1

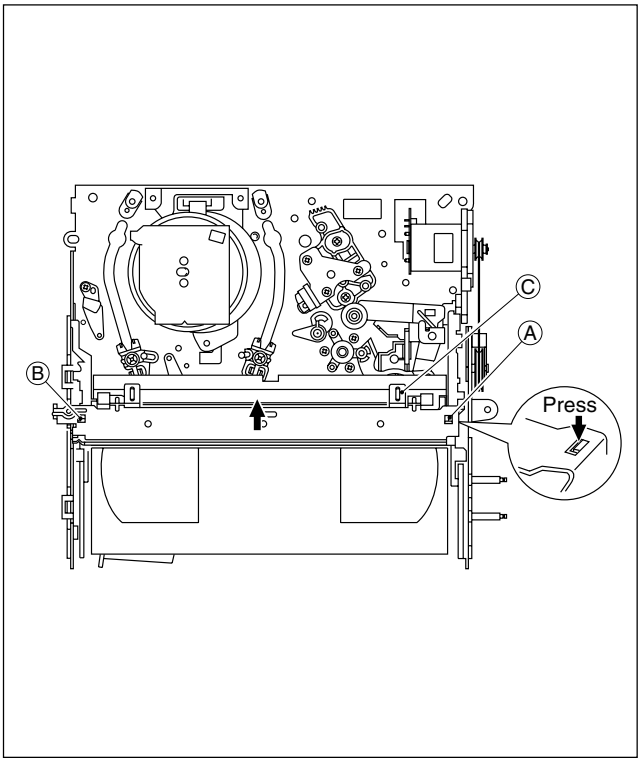


Fig. 2-1-2

2. In case of mechanical failure

If you cannot remove the cassette tape which is loaded because of any mechanical failure, manually remove it by taking the following steps.

(1) Unplug the power cable and remove the top cover, front panel assembly and others so that the mechanism assembly is visible. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD.)

(2) While keeping the tension arm assembly of the mechanism assembly free from tension, pull the tape on the pole base assembly (supply or take-up side) out of the guide roller. (See Fig.2-1-3.)

(3) Take the spring of the pinch roller arm assembly off the hook of the press lever assembly, and detach it from the tape. (See Fig.2-1-4.)

(4) In the same way as in the electrical failure instructions in 2.1.3 (4), remove the top guide.

(5) Raise the cassette tape cover. By keeping it in that position, draw out the cassette tape case from the cassette holder and take out the tape.

(6) By hanging the pinch roller arm assembly spring back on the hook, take up the slack of the tape into the cassette.

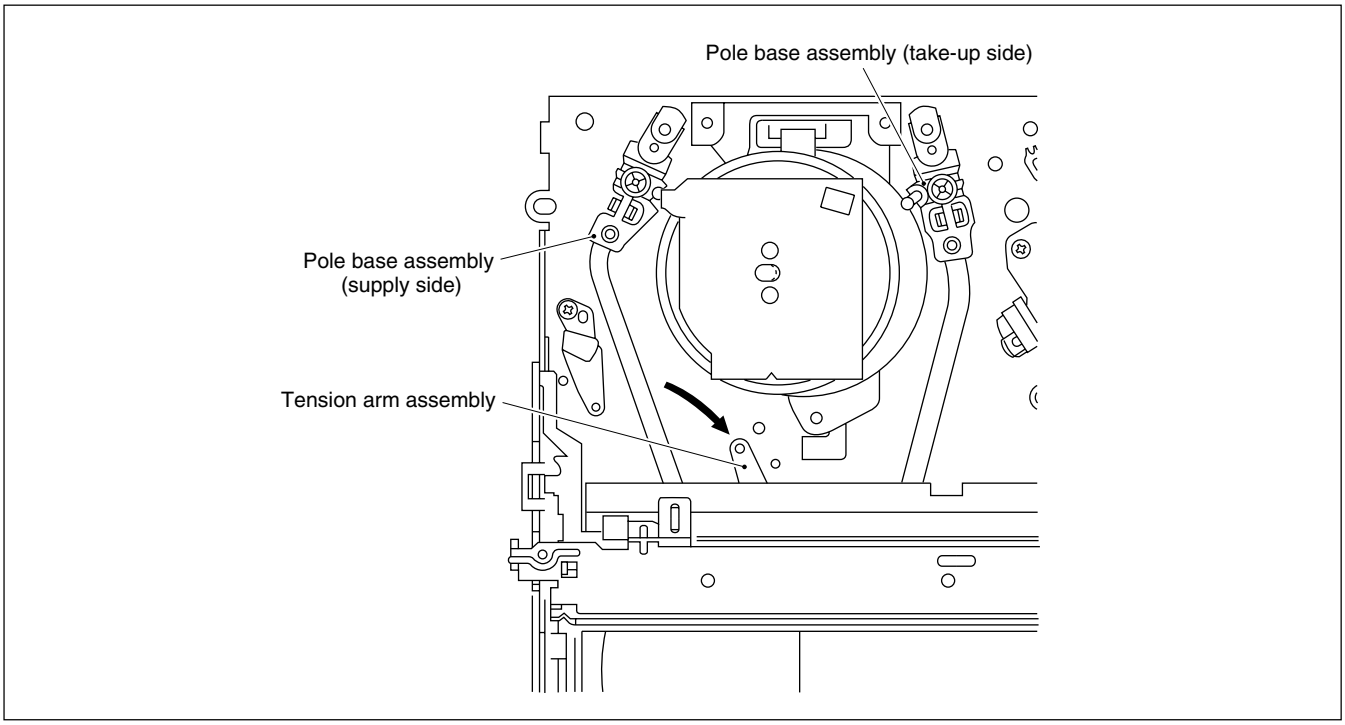


Fig. 2-1-3

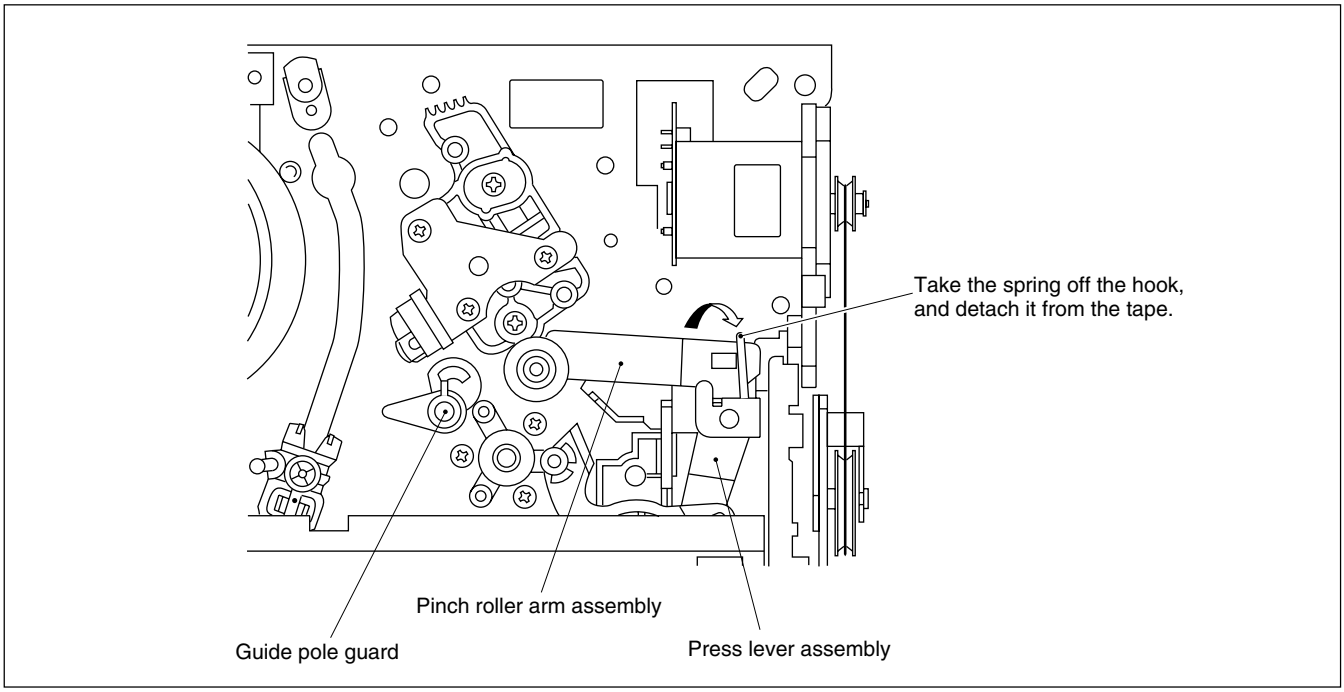


Fig. 2-1-4

2.1.4 Jigs and Tools Required for Adjustment

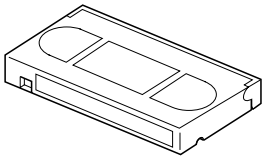
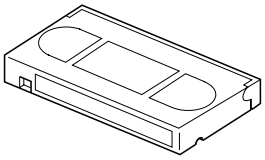
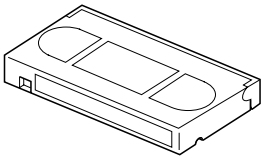
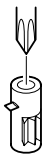
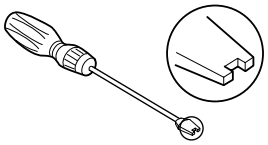
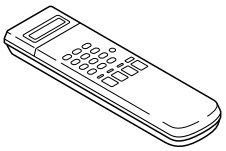
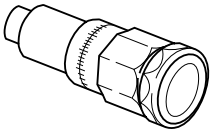
Alignment tape (SP) MHP	Alignment tape (EP) MHP-L	Back tension cassette gauge PUJ48076-2	A/C head positioning tool PTU94010
			
Roller driver PTU94002	Jig RCU PTU94023B	Torque gauge PUJ48075-2	
			

Table 2-1-1 Jigs and tools required for adjustment

2.1.5 Maintenance and Inspection

1. Location of major mechanical parts

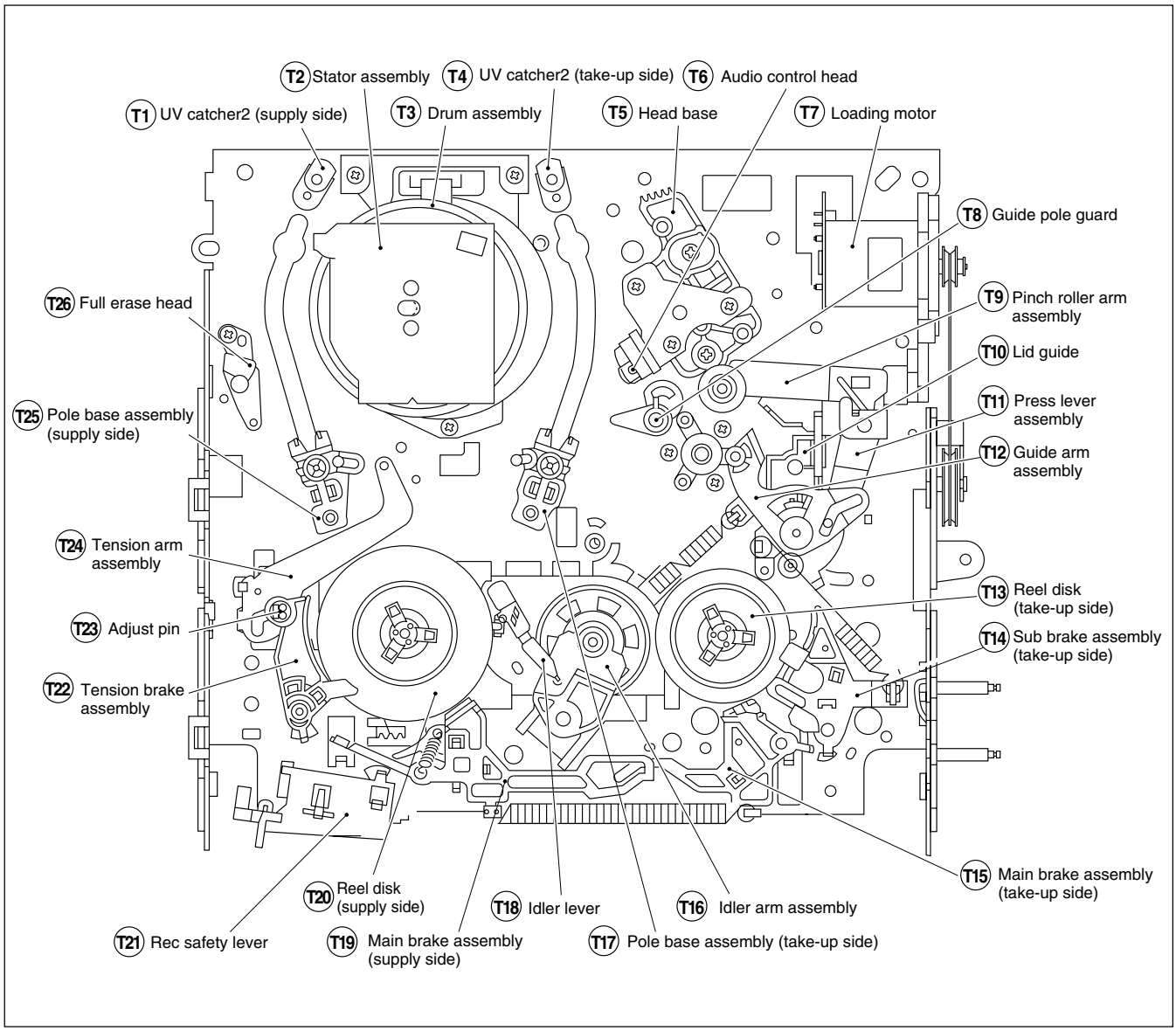

T1 UV catcher2 (supply side)
T2 Stator assembly
T3 Drum assembly
T4 UV catcher2 (take-up side)
T5 Head base
T6 Audio control head
T7 Loading motor
T8 Guide pole guard
T9 Pinch roller arm assembly
T10 Lid guide
T11 Press lever assembly
T12 Guide arm assembly
T13 Reel disk (take-up side)
T14 Sub brake assembly (take-up side)
T15 Main brake assembly (take-up side)
T16 Idler arm assembly
T17 Pole base assembly (take-up side)
T18 Idler lever
T19 Main brake assembly (supply side)
T20 Reel disk (supply side)
T21 Rec safety lever
T22 Tension brake assembly
T23 Adjust pin
T24 Tension arm assembly
T25 Pole base assembly (supply side)
T26 Full erase head

Fig. 2-1-5 Mechanism assembly top side

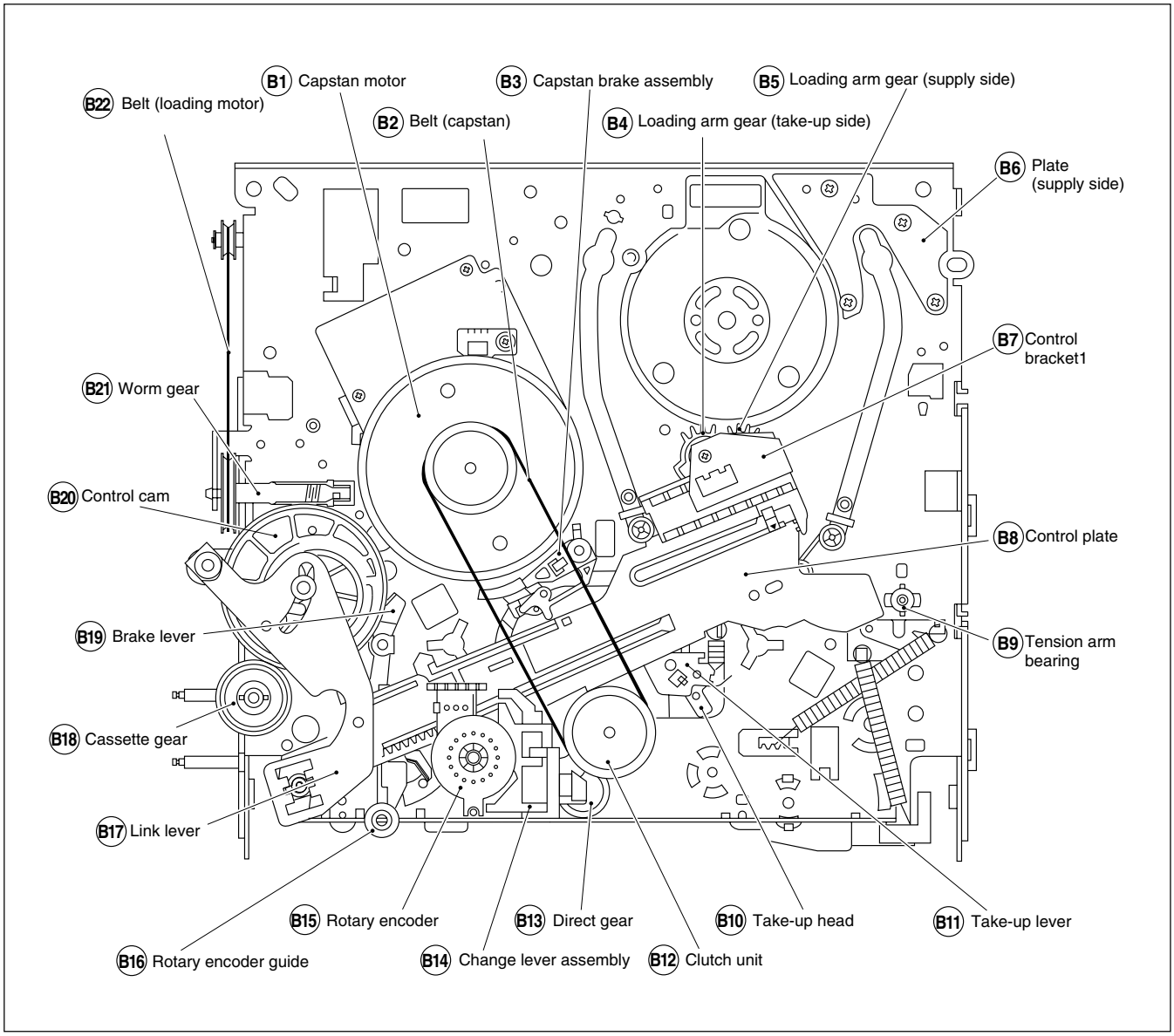


Fig. 2-1-6 Mechanism assembly bottom side

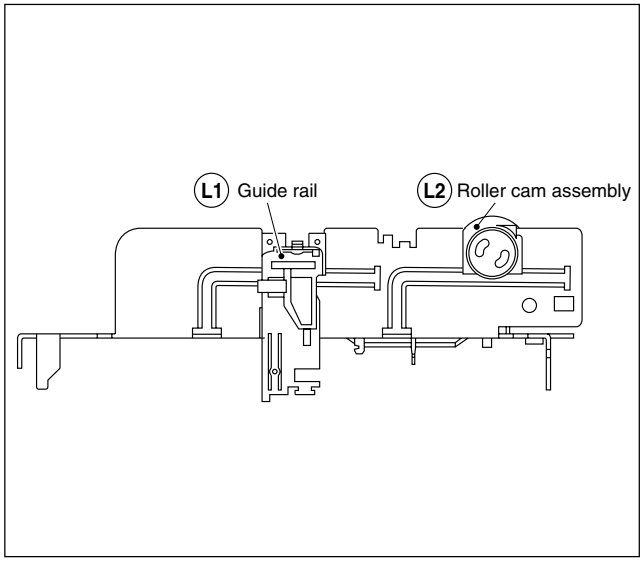


Fig. 2-1-7 Mechanism assembly left side

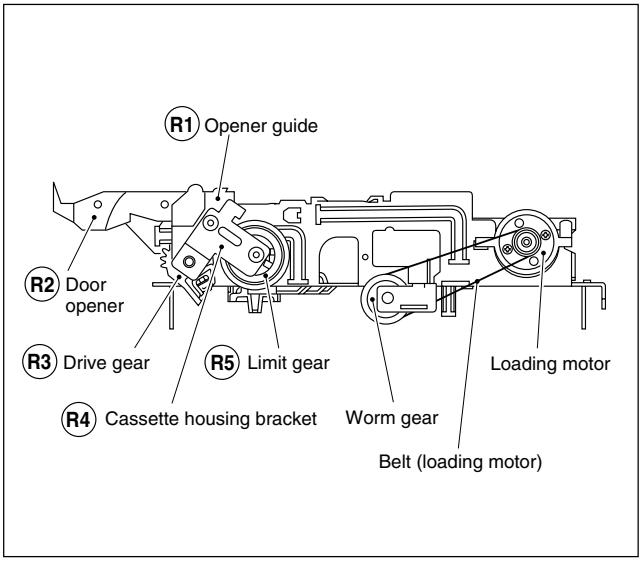


Fig. 2-1-8 Mechanism assembly right side

Note: *This table shows the order in which parts are removed for replacement. To replace parts, remove them in the order of 1 to 18 as shown in the table. To install them, reverse the removal sequence.*
The circled numbers (symbols and numbers) preceding the individual part names represent the numbers in the "Location of major mechanical parts" table. Also, the "T", "B", and "T/B" on the right of each part name shows that the particular part is removed from the front, from the back, and from both sides of the mechanism, respectively.

Symbols and numbers	Removal parts / (Reference items) Replacement parts	Front (T)/Back (B) of mechanism	Number of removal steps	(L1) Guide rail	(L2) Roller cam assembly	(R4) Cassette housing bracket	(R1) Opener guide	— Relay gear	— Cassette holder assembly	(R3) Drive gear	— Drive arm	(T9) Pinch roller arm assembly	(T12) Guide arm assembly	(T11) Press lever assembly	(T1),(T4) UV catcher2	(B15) Rotary encoder	(B12) Clutch unit	(B14) Change lever assembly	(B13) Direct gear	(B17) Link lever	(B21) Worm gear	(B7) Control bracket1	(B8) Control plate	(B5) Loading arm gear (supply side)	(B4) Loading arm gear (take-up side)	(B11) Take-up lever	(T14) Sub brake assembly (take-up side)	(T15) Main brake assembly (take-up side)	(T13) Reel disk (take-up side)	(T22) Tension brake assembly	(T24) Tension arm assembly	(T18) Idler lever	(B19) Brake lever
(L1)	2.2.3 Guide rail	T	1																														
(L2)	2.2.3 Roller cam assembly	T	1																														
(R4)	2.2.3 Cassette housing bracket	T	1																														
(R1)	2.2.3 Opener guide	T	2			1																											
(R2)	2.2.3 Door opener	T	3			1	2																										
—	2.2.3 Relay gear	T	3			1	2																										
(R5)	2.2.3 Limit gear	T	3			1	2																										
—	2.2.3 Cassette holder assembly	T	6	1	2	3	4	5																									
(R3)	2.2.3 Drive gear	T	4			1	2	3																									
—	2.2.3 Drive arm	T	8	1	2	3	4	5	6	7																							
(T9)	2.2.4 Pinch roller arm assembly	T	1																														
(T12)	2.2.5 Guide arm assembly	T	1																														
(T11)	2.2.5 Press lever assembly	T	3									1	2																				
(T6)	2.2.6 Audio control head	T	1																														
(T7)	2.2.7 Loading motor	T	1																														
(B1)	2.2.8 Capstan motor	T/B	1																														
(T1),(T4)	2.2.9 UV catcher2	T	1																														
(T17)	2.2.9 Pole base assembly (take-up side)	T/B	2												1																		
(T25)	2.2.9 Pole base assembly (supply side)	T/B	2												1																		
(B15)	2.2.10 Rotary encoder	B	1																														
(B12)	2.2.11 Clutch unit	B	1																														
(B14)	2.2.12 Change lever assembly	B	3													1	2																
(B13)	2.2.12 Direct gear	B	4													1	2	3															
—	2.2.12 Clutch gear1	B	5													1	2	3	4														
(B17)	2.2.13 Link lever	B	1																														
(B18)	2.2.14 Cassette gear	B	2																	1													
(B20)	2.2.14 Control cam	B	2																	1													
(B21)	2.2.14 Worm gear	B	1																														
(T10)	- Lid guide	T/B	5									1	2	3							4												
(B7)	2.2.15 Control bracket1	B	1																														
(B8)	2.2.15 Control plate	B	6													1	2	3		4		5											
(B5)	2.2.16 Loading arm gear (supply side)	B	7													1	2	3		4		5	6										
(B4)	2.2.16 Loading arm gear (take-up side)	B	8													1	2	3		4		5	6	7									
—	2.2.16 Loading arm gear shaft	B	9													1	2	3		4		5	6	7	8								
(B11)	2.2.17 Take-up lever	T/B	7													1	2	3		4		5	6										
(B10)	2.2.17 Take-up head	T/B	8													1	2	3		4		5	6			7							
—	2.2.17 Control plate guide	T/B	8													1	2	3		4		5	6			7							
(B3)	2.2.18 Capstan brake assembly	T/B	7													1	2	3		4		5	6										
(T14)	2.2.19 Sub brake assembly(take-up side)	T/B	15	1	2	3	4	5	6	7	8					9	10	11		12		13	14										
(T15)	2.2.20 Main brake assembly(take-up side)	T/B	16	1	2	3	4	5	6	7	8					9	10	11		12		13	14				15						
(T19)	2.2.20 Main brake assembly(supply side)	T/B	9	1	2	3	4	5	6	7	8																						
(T13)	2.2.20 Reel disk (take-up side)	T/B	16	1	2	3	4	5	6	7	8					9	10	11		12		13	14				15						
(T22)	2.2.21 Tension brake assembly	T/B	9	1	2	3	4	5	6	7	8																						
(T20)	2.2.21 Reel disk (supply side)	T/B	10	1	2	3	4	5	6	7	8																				9		
(T24)	2.2.21 Tension arm assembly	T/B	10	1	2	3	4	5	6	7	8																				9		
(B9)	2.2.21 Tension arm bearing	T/B	10	1	2	3	4	5	6	7	8																				9		
(T18)	2.2.22 Idler lever	T/B	17	1	2	3	4	5	6	7	8					9	10	11		12		13	14								15	16	
(T16)	2.2.22 Idler arm assembly	T/B	18	1	2	3	4	5	6	7	8					9	10	11		12		13	14								15	16	17
(B19)	- Brake lever	T/B	18	1	2	3	4	5	6	7	8					9	10	11		12		13	14				15	16	17				
(B16)	- Rotary encoder guide	T/B	19	1	2	3	4	5	6	7	8					9	10	11		12		13	14				15	16	17				18

2. Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.

When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

(1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth or Kimu-wipe with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.

Note: *Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.*

(2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.

(3) After cleaning, make sure that the cleaned parts are completely dry before using the video tape.

3. Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

(1) See the mechanism assembly and disassembly diagrams for the lubricating or greasing spots. See Table 2-1-2 for the types of oil or grease to be used.

Type	Name	Serial No.	Symbols on the disassembly diagrams
Grease	Maltemp SH-P	KYODO-SH-P	AA
Oil	Cosmohydro HV56	COSMO-HV56	BB

Table 2-1-2 Grease and oil used for the unit

4. Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning,lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions.However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time,even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★◯	◯
	A/C head	★◯	★◯
	Lower drum assembly	★	★◯
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Capstan motor (Shaft)	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		◯
	Capstan brake assembly		◯
	Main brake assembly		◯
	Belt (Capstan)	◯	◯
	Belt (Loading motor)		◯
	Loading motor		◯
	Clutch unit		◯
	Worm gear		◯
	Control plate		◯
Other	Brush	★◯	★◯
	Tension brake assembly	◯	◯
	Rotary encoder		◯

★: Cleaning

◯: Inspection or Replacement if necessary

Table 2-1-3

2.2 REPLACEMENT OF MAJOR PARTS

2.2.1 Before Starting Disassembling (Phase matching between mechanical parts)

The mechanism of this unit is closely linked with the rotary encoder and system controller circuits.

Since the system controller detects the status of mechanical operation in response to phases of the rotary encoder (internal switch positions), the mechanism may not operate properly unless such parts as the rotary encoder, control plate, loading arm gear, control cam, cassette gear, limit gear, relay gear and drive gear are installed in their correct positions.

Especially, this model is not provided with any cassette housing assembly, so that cassette loading and unloading must be accomplished by operation of the cassette holder assembly. The latter is in turn driven by such parts as the drive gear, relay gear and limit gear. Exercise enough care, therefore, to have the phases of all this gear matching one another.

(For information on phase matching of the mechanism, see the instructions on how to install individual parts.)

This unit is provided with a mechanism assembly mode. It is therefore necessary to enter this mode for assembling and disassembling procedures.
This mode is usually not in use, manually set it when it is required.

2.2.2 How to Set the Mechanism Assembling Mode

Remove the mechanism assembly and place it bottom side up. (See SECTION 1 DISASSEMBLY.) Turn the worm gear toward the front so that the guide hole of the control cam is brought into alignment with the hole at the mechanism assembly chassis. This position renders the mechanism assembling mode operational. Make sure that the control plate is located in alignment with the mark E. (See Fig.2-2-1.)

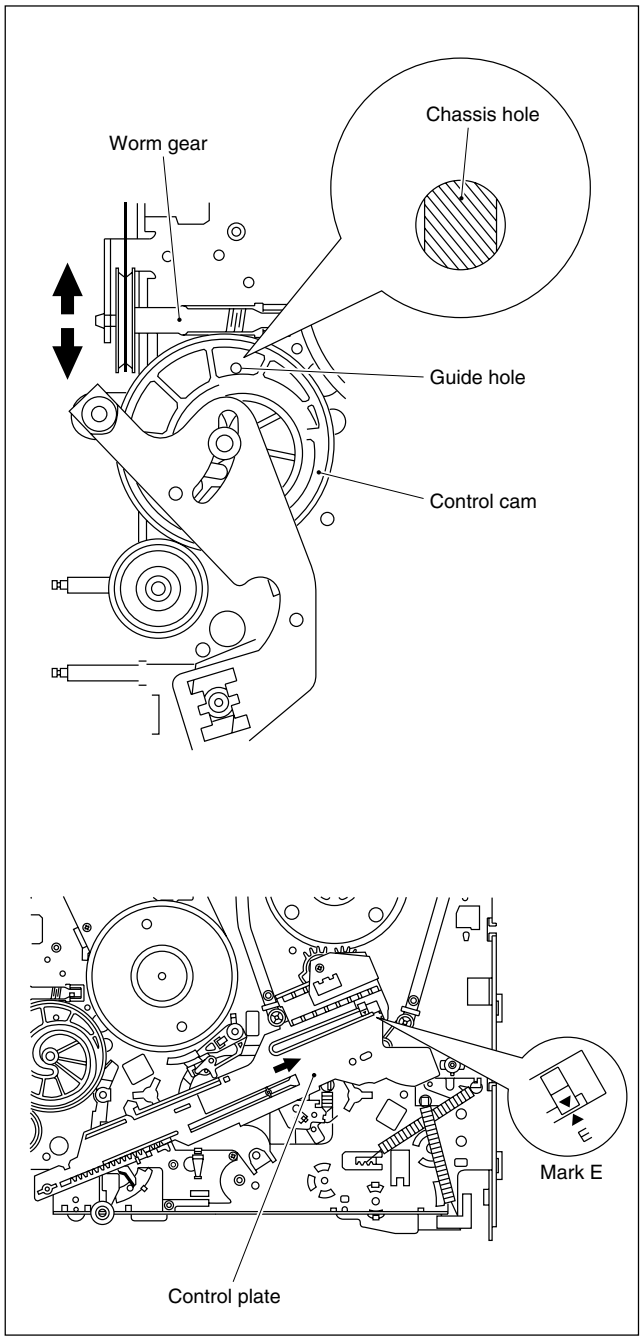


Fig. 2-2-1

2.2.3 Cassette Holder Assembly

1. How to remove

(1) Remove the guide rail and roller cam assembly. (See Fig.2-2-2.)
(3 lugs on the guide rail and one lug on the roller cam assembly)

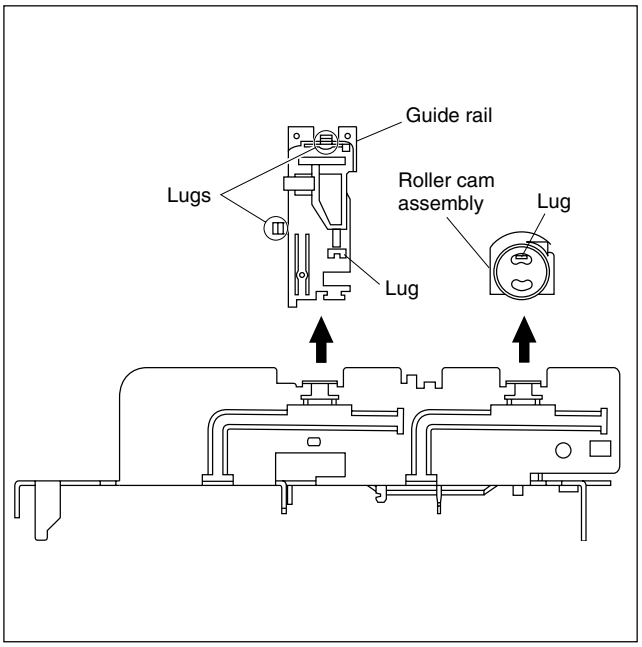


Fig. 2-2-2

(2) Remove the two slit washers and remove the cassette housing bracket. (See Fig.2-2-3.)
(3) Remove the opener guide, spring(A), door opener, relay gear and limit gear. (See Fig.2-2-3.)

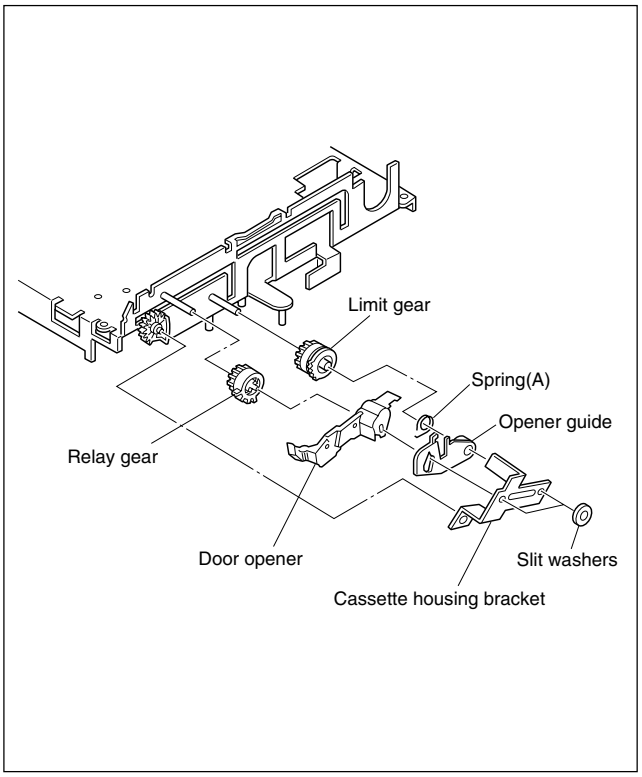


Fig. 2-2-3

(4) While swinging the lock levers (R) and (L) of the cassette holder assembly toward the front, slide the cassette holder assembly until its legs come to where the guide rail and the roller cam assembly have been removed (so that the drive arm is upright). (See Fig.2-2-4.)

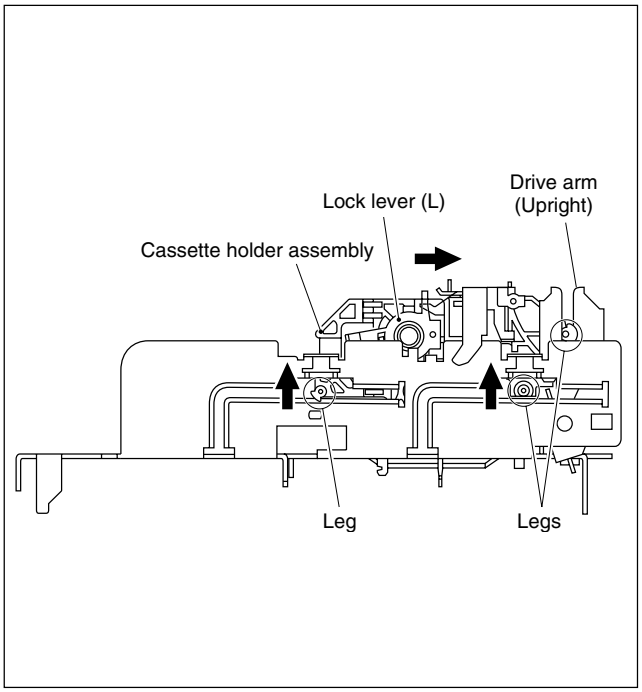


Fig. 2-2-4

(5) While holding the left side of the cassette holder, lift the cassette holder assembly so that the three legs on the left side are all released. Then pull the legs Ⓐ and Ⓑ on the right side out of the rail and also pull up the leg Ⓒ. (See Fig.2-2-5 and Fig.2-2-6.)

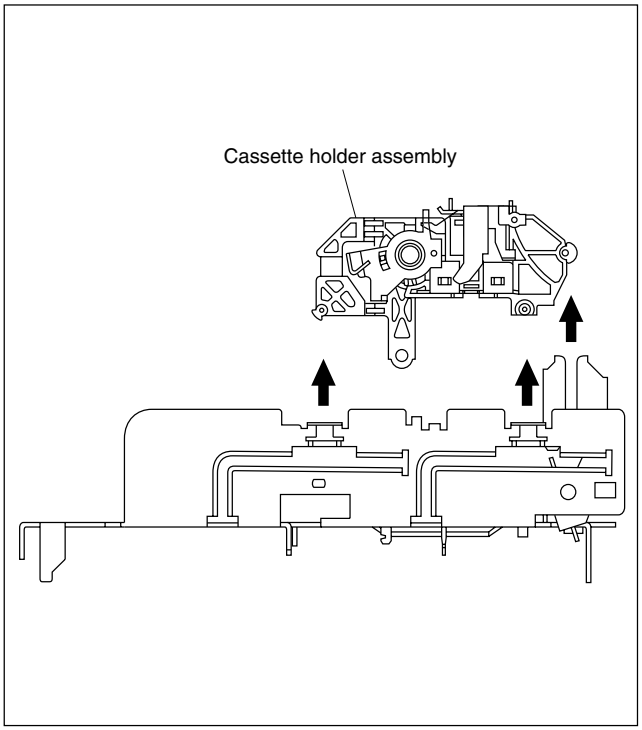


Fig. 2-2-5

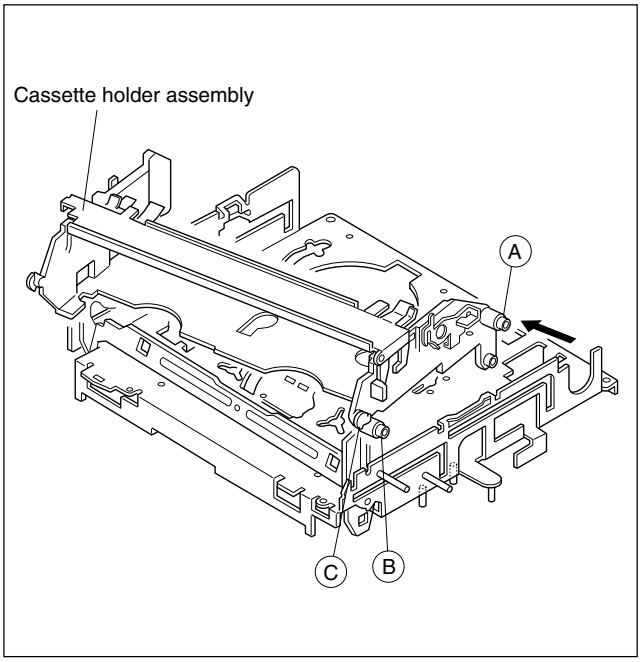


Fig. 2-2-6

(6) Draw out the drive gear, and remove the drive arm.

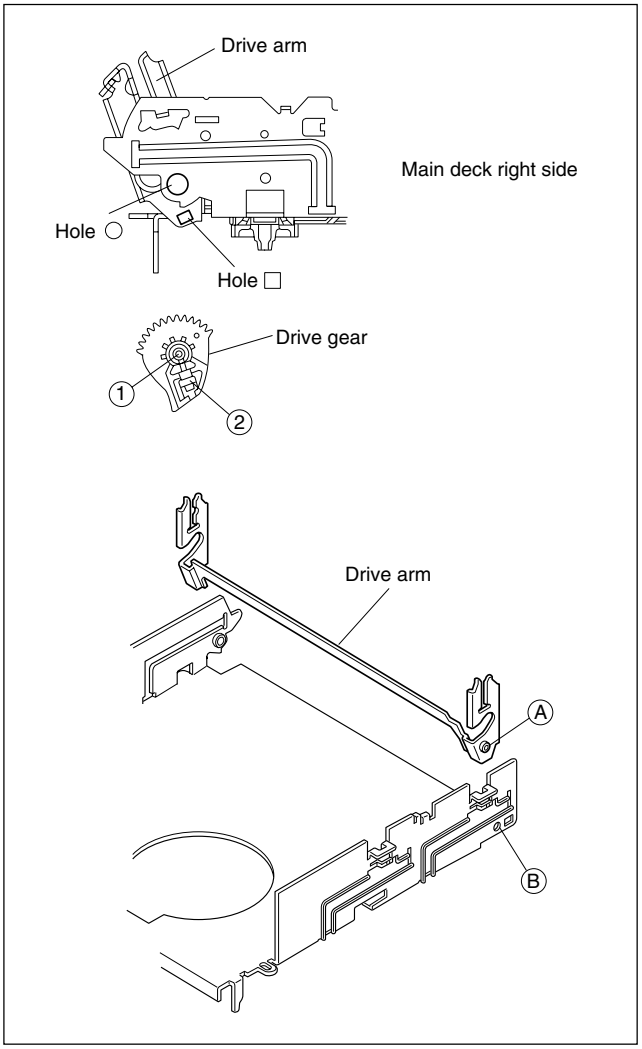


Fig. 2-2-7

2. How to install (Phase matching)

(1) Insert the section Ⓐ of the drive arm into the section Ⓑ of the main deck.

(2) Insert the section ① of the drive gear into the round hole, and the section ② into the square hole on the drive arm. (See Fig.2-2-7.)

(3) Hold the drive arm upright and fit the leg Ⓒ on the right side of the cassette holder assembly into the groove. (See Fig.2-2-8.)

(4) While swinging the lock lever (R) of the cassette holder assembly toward the front, put the legs Ⓐ and Ⓑ into the rail. (See Fig.2-2-8.)

(5) Drop the three legs on the left side of the cassette holder assembly into the groove at one time. (See Fig.2-2-9.)

(6) Slide the whole cassette holder assembly toward the front to bring it to the eject end position.

(7) Install the limit gear so that the notch on the outer circumference of the limit gear is brought into alignment with the guide hole on the main deck. (See Fig.2-2-10.)

(8) Install so that the notch on the periphery of the relay gear is aligned with the notch of the main deck and that hole A of the relay gear is aligned with the hole A of the limit gear and that hole B of the relay gear is aligned with the hole B of the drive gear. (See Fig.2-2-10.)

(9) Install the door opener, opener guide, spring(A) and cassette housing bracket and fasten the two slit washers.

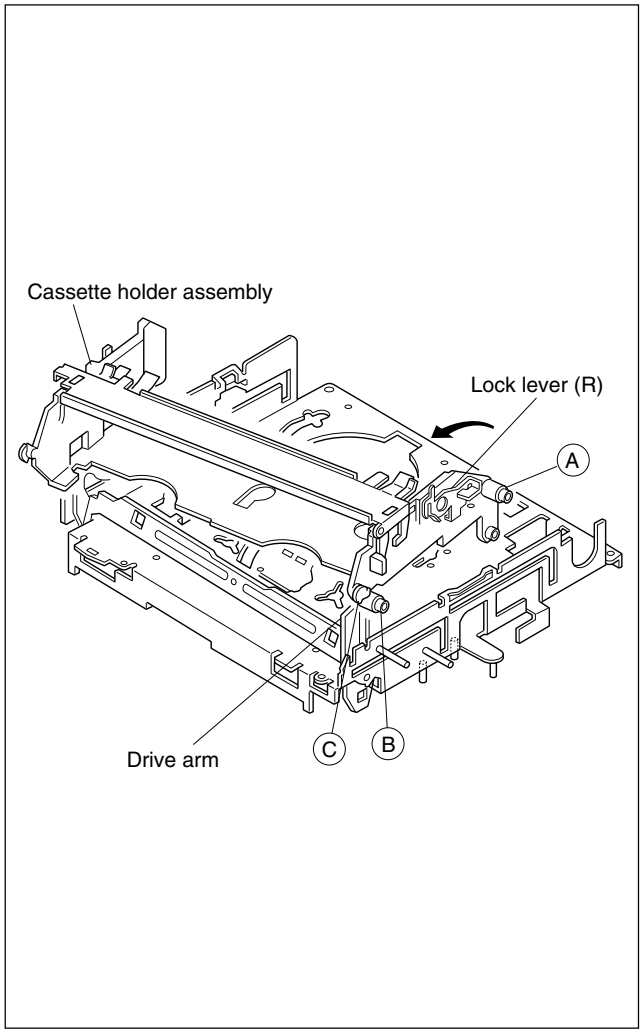


Fig. 2-2-8

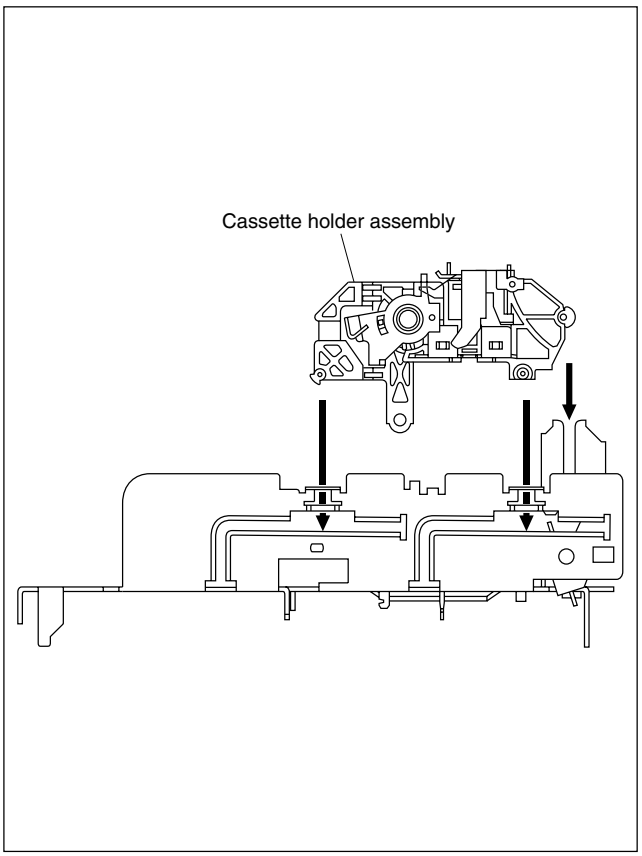


Fig. 2-2-9

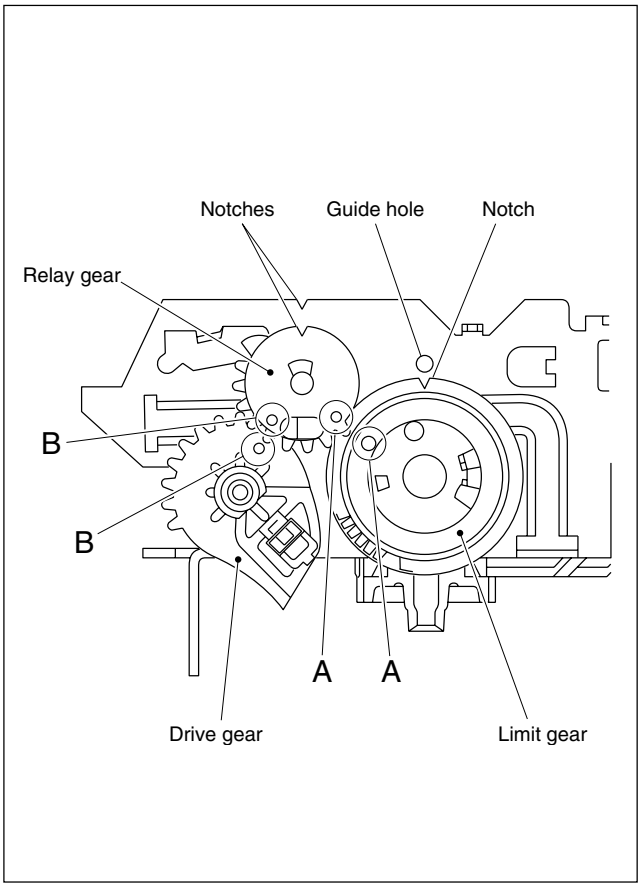


Fig. 2-2-10

2.2.4 Pinch Roller Arm Assembly

1. How to remove

(1) Remove the spring from the hook of the press lever assembly.
(2) Remove the slit washer and remove the pinch roller seat 2. (See Fig.2-2-11.)
(3) Remove the pinch roller arm assembly by pulling it up.

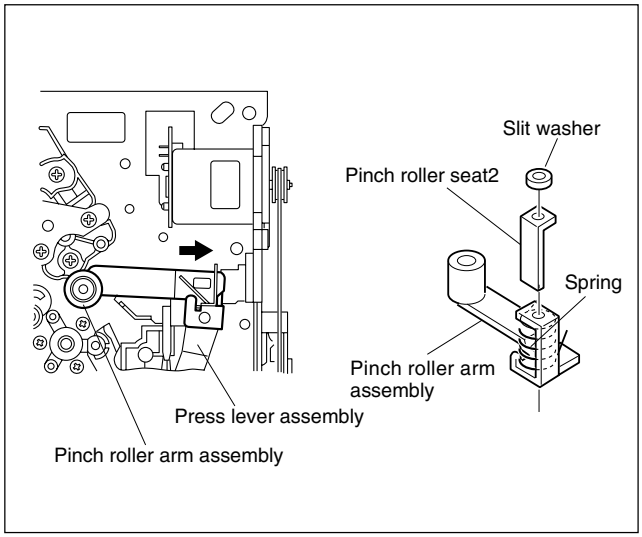


Fig. 2-2-11

2.2.5 Guide Arm Assembly and Press Lever Assembly

1. How to remove

(1) Remove the spring and expand the lug of the lid guide in the arrow-indicated direction. Then remove the guide arm assembly by pulling it up.
(2) Remove the press lever assembly by pulling it up. (See Fig.2-2-12.)

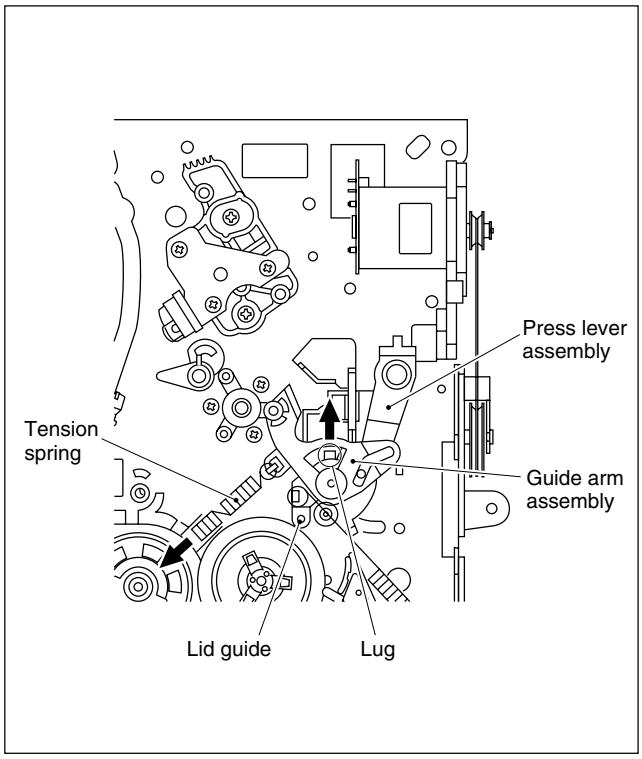


Fig. 2-2-12

2.2.6 Audio Control Head

1. How to remove

(1) Remove the two screws (A) and remove the audio control head together with the head base.

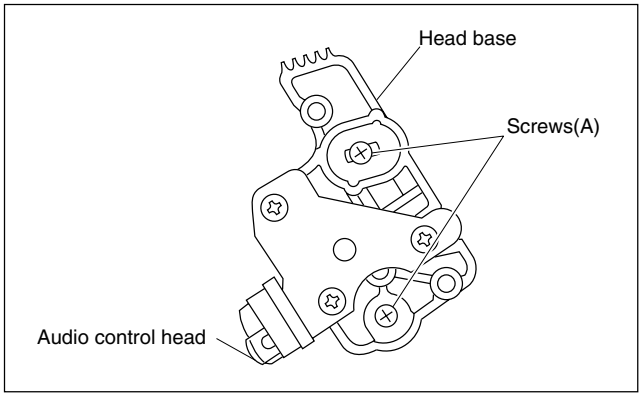


Fig. 2-2-13

(2) When replacing only the audio control head, remove the three screws (B) while controlling the compression spring.

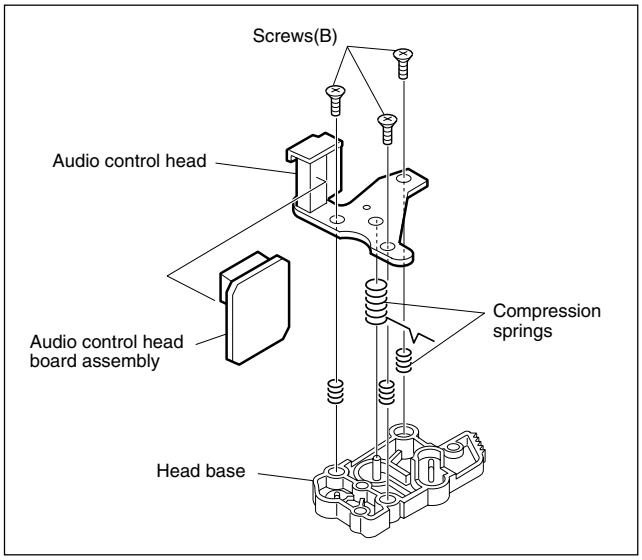


Fig. 2-2-14

2. How to install

(1) To make the post-installation adjustment easier, set the temporary level as indicated in Fig.2-2-15. Also make sure that the screw center is brought into alignment with the center position of the slot.

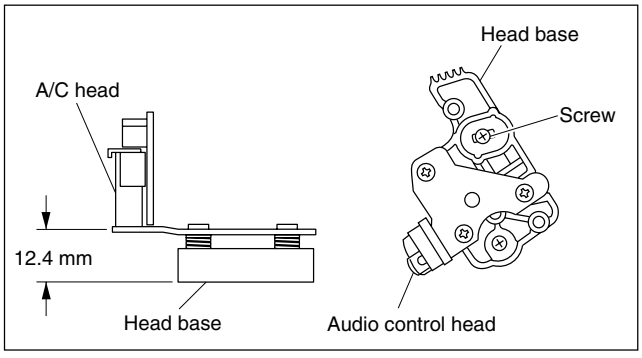


Fig. 2-2-15

2.2.7 Loading Motor

1. How to remove

(1) Remove the belt wound around the worm gear.
(2) Open the two lugs of the motor guide and remove the loading motor, loading motor board assembly and motor guide altogether by pulling them up.
(3) When replacing the loading motor board assembly, take care with the orientation of the loading motor. (Install so that the loading motor label faces upward.)
(4) When the motor pulley has been replaced, choose the fitting dimension as indicated in Fig.2-2-16.

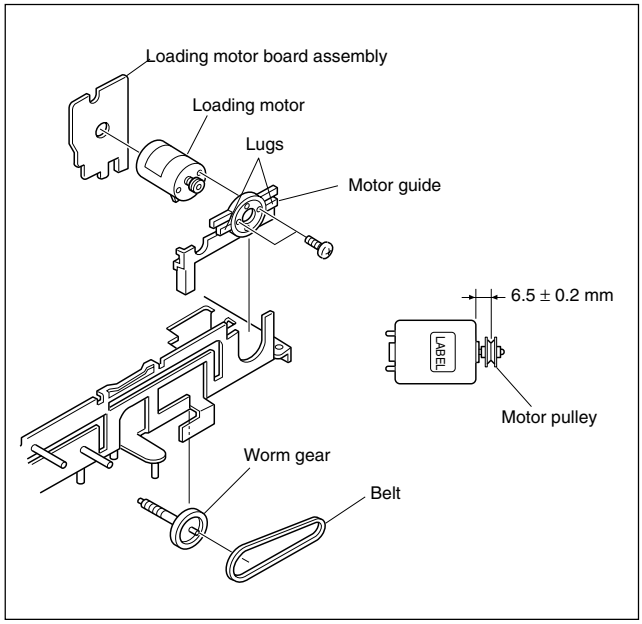


Fig. 2-2-16

2.2.8 Capstan Motor

1. How to remove

(1) Remove the belt (capstan) on the mechanism assembly back side.
(2) Remove the three screws (A) and remove the capstan motor.

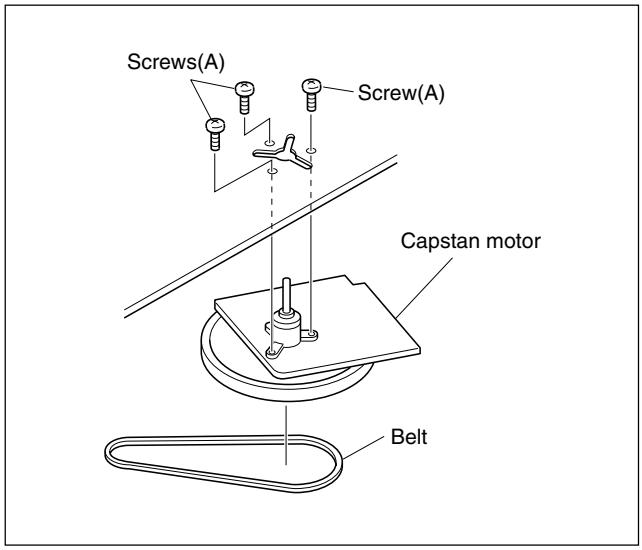


Fig. 2-2-17

2. How to install (Centering the mounting position)

When the capstan motor has once been removed and then reinstalled out of the initial correct position in the rotational direction, the capstan motor current may be unstable during operation in high or low temperatures. This may result in greater Wow & Flutter and occasionally in power breakdown because of current over - load. Install the capstan motor while following the procedure given below.
(The capstan motor is centrally located when the unit is shipped from the factory.)

(1) Provisionally tighten the three screws (A) securing the capstan motor.
(2) Install the mechanism assembly to which the capstan motor is provisionally fastened on the bottom chassis which incorporates the Main board assembly. (No need to tighten the screws for mounting the mechanism.)
Make sure that all the connectors for the mechanism assembly and the Main board assembly are correctly installed as indicated in Fig. 2-2-18.

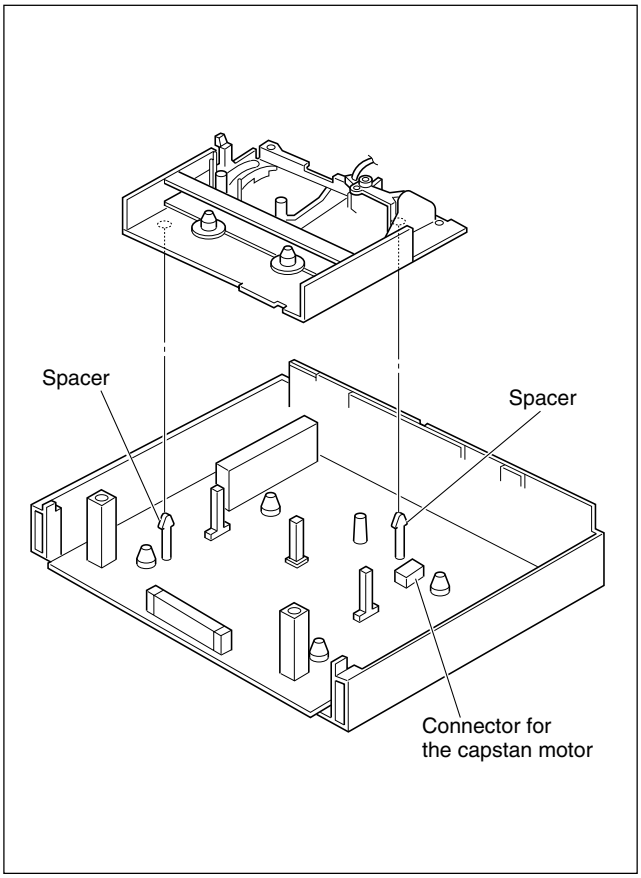


Fig. 2-2-18

(3) Making sure that the connector for the capstan motor is correctly mounted, and securely tighten the three screws (A).

Note: *When the capstan motor has been replaced with a new one, perform recording in the EP(or LP) mode for at least 2 minutes at normal temperatures immediately before starting the FF/REW or SEARCH operations (Aging).*

2.2.9 Pole Base Assembly (supply or take-up side)

1. How to remove

(1) Remove the UV catcher 2 on the removal side by loosening the screw (A).
(2) Remove the pole base assembly on the supply side from the mechanism assembly by loosening the screw (B) on the mechanism assembly back side and sliding the pole base assembly toward the UV catcher 2.
(3) As for the pole base assembly on the take-up side, turn the pulley of the loading motor to lower the cassette holder because the screw (B) is hidden under the control plate. (See the "Procedures for Lowering the Cassette holder assembly" of 1.3 DISASSEMBLY/ASSEMBLY METHOD.) Further turn the motor pulley to move the cassette holder until the screw (B) is no longer under the control plate (in the half-loading position). Then remove it as done for the supply side by removing the screw (B).

NOTE: *After reinstalling the Pole base assembly and the UV catcher2, be sure to perform compatibility adjustment.*

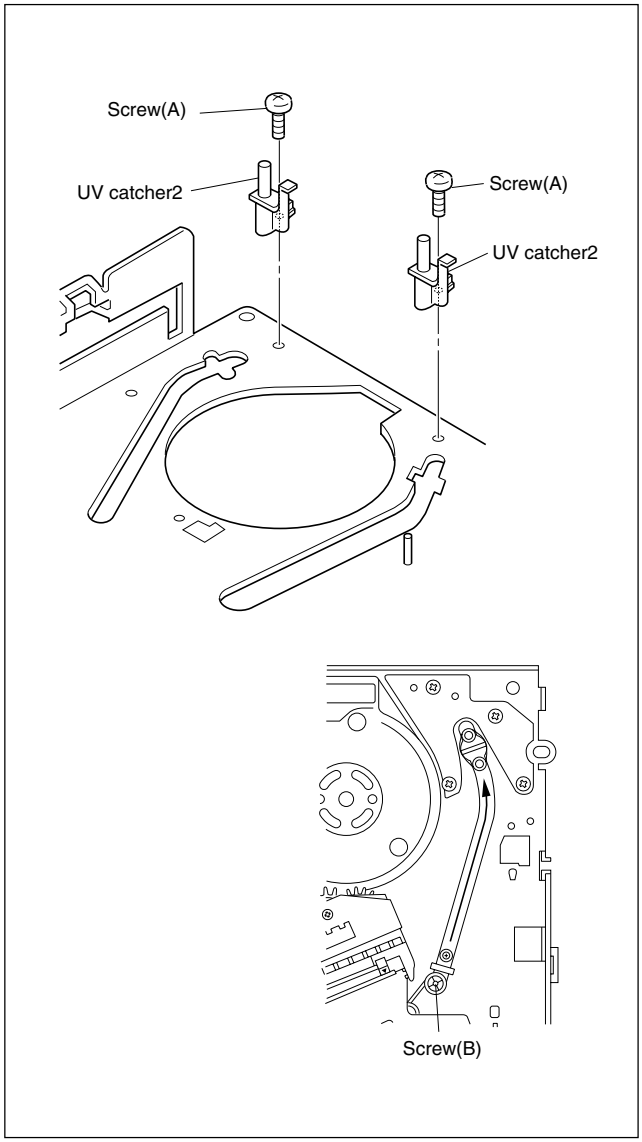


Fig. 2-2-19

2.2.10 Rotary Encoder

1. How to remove

(1) Remove the screw (A) and remove the rotary encoder by pulling it up. (See Fig. 2-2-20.)

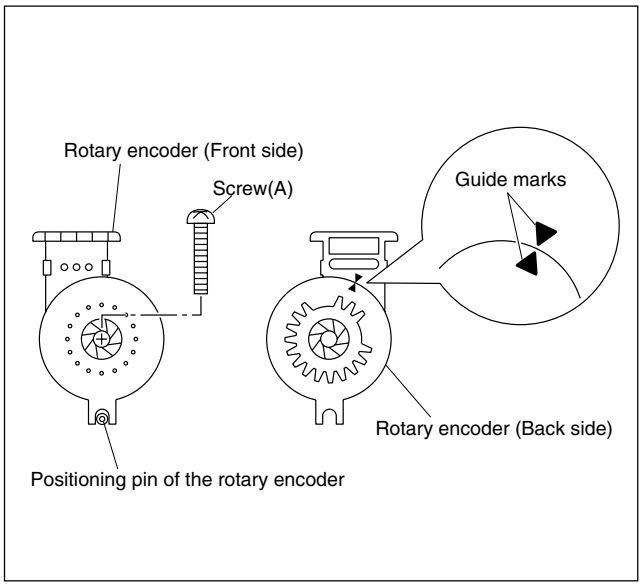


Fig. 2-2-20

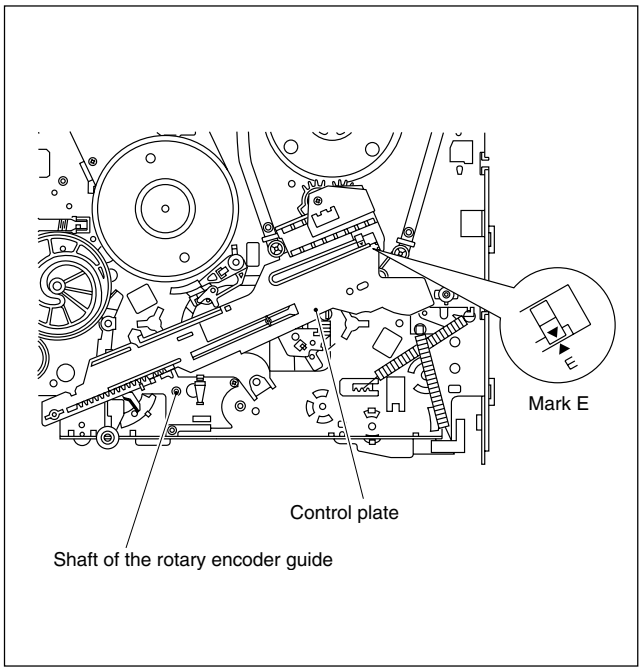


Fig. 2-2-21

2. How to install (Phase matching)

(1) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft and bring the guide marks on the rotary encoder into alignment as indicated in Fig.2-2-20. (See Fig. 2-2-20 and Fig. 2-2-21.)
(2) Turn over the rotary encoder with its guide marks kept in alignment and install it by fitting on the shaft of the rotary encoder guide and the positioning pin.
(3) Tighten the screw (A) to complete the installation.

2.2.11 Clutch Unit

(1) Remove the belt wound around the capstan motor and the clutch unit.
(2) Remove the slit washer and remove the clutch unit.

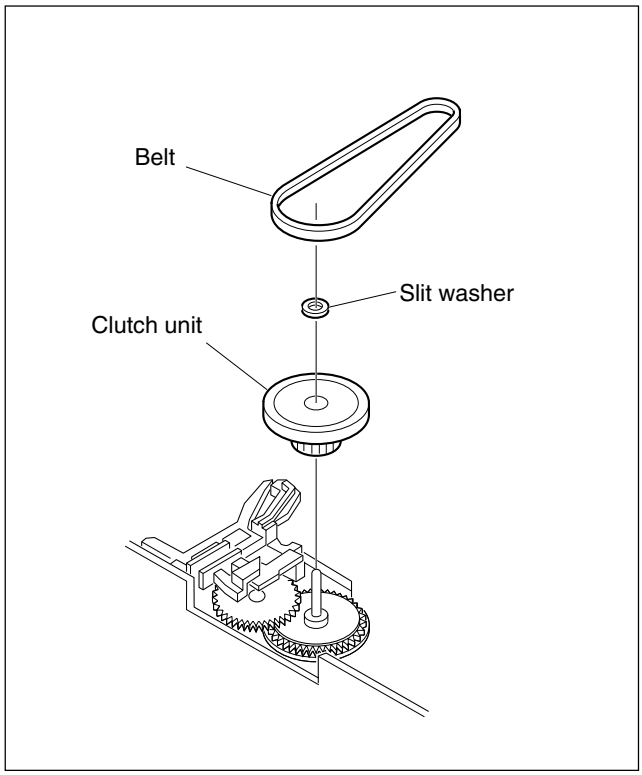


Fig. 2-2-22

2.2.12 Change Lever Assembly, Direct Gear and Clutch Gear1

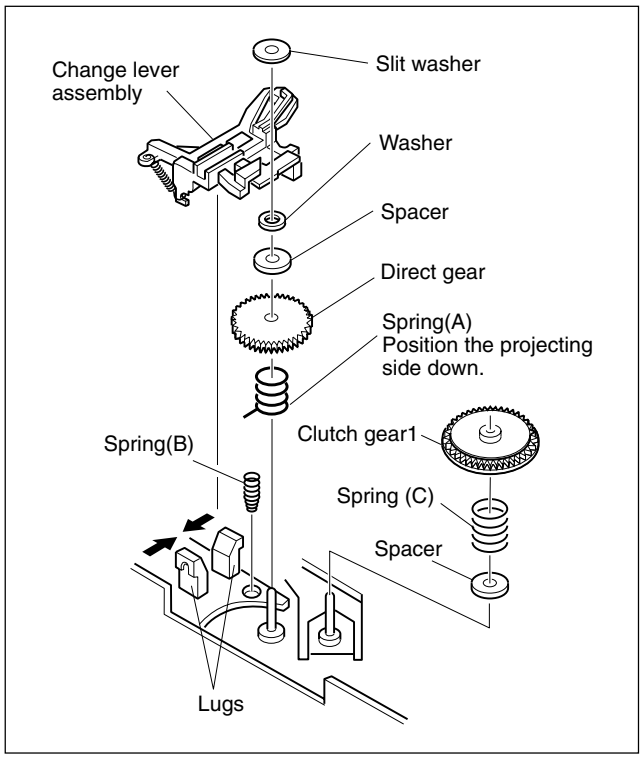


Fig. 2-2-23

1. How to remove

(1) Release the two lugs of the rotary encoder guide in the arrow-indicated direction and remove the change lever assembly.
(2) Remove the slit washer retaining the direct gear and remove the latter.
Take care so as not to lose the washer and spring. (See Fig.2-2-23.)

2. How to install

(1) Install the clutch gear1, spring (A), spring (C), direct gear, spacer and others to the individual shafts of the main deck, and finally the slit washer. (See Fig.2-2-23.)
(2) Let the spring (B) drops into the rotary encoder guide hole and install the change lever assembly.(Take care not to mistake a direction of the spring.) The point is to slightly lift the clutch gear1 and catch it from the both sides with the assembly. (See Fig.2-2-24.)

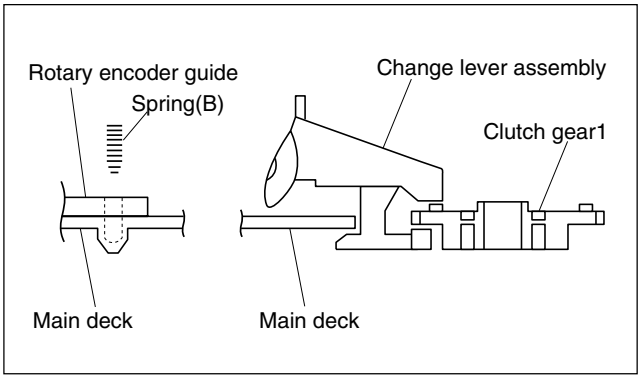


Fig. 2-2-24

2.2.13 Link Lever

1. How to remove

(1) Remove the two slit washers.
(2) Remove the link lever by lifting it from the shaft retained by the slit washers. Then swing the link lever counterclockwise and remove it from the locking section of the control plate.

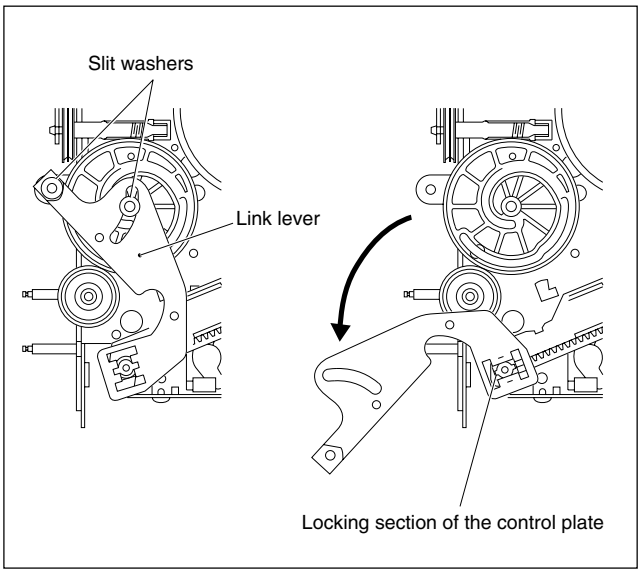


Fig. 2-2-25

2. How to install (Phase matching)

(1) Slide the control plate so that its mark E is aligned with the mark ▼ on the loading arm gear shaft. (See Fig.2-2-26.)
(2) Rotate the worm gear until the guide hole of the control cam is aligned exactly with the guide hole of the main deck. (See Fig.2-2-27.)
(3) Insert the link lever into the locking section of the control plate. (See Fig.2-2-25.)
(4) Rotate the link lever clockwise so that it is installed on the shafts in the center and on the left of the control cam.
(5) Fasten the slit washers at these two points.

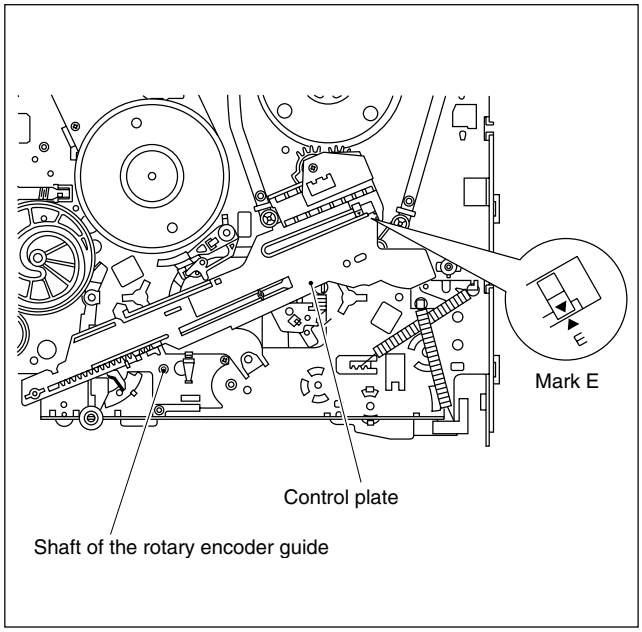


Fig. 2-2-26

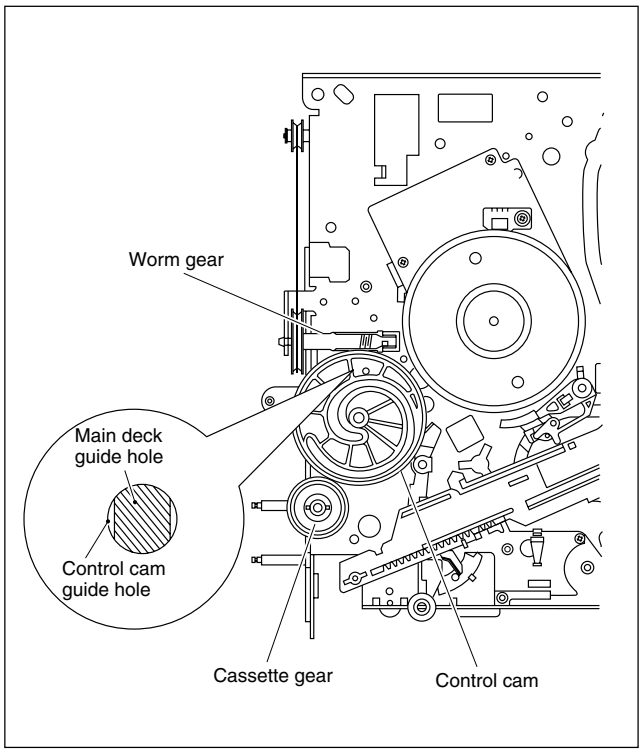


Fig. 2-2-27

2.2.14 Cassette Gear, Control Cam and Worm Gear

1. How to remove

(1) Remove the control cam by lifting it.
(2) Open the two lugs of the cassette gear outward and pull the latter off.
(3) Remove the belt wound around the worm gear and the loading motor.
(4) Open the lug of the lid guide outward and remove the worm gear.

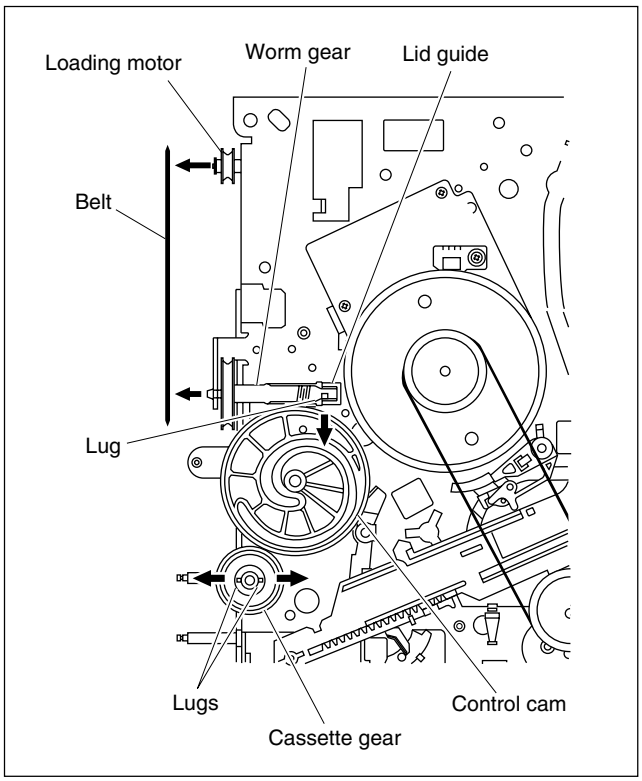


Fig. 2-2-28

2.2.15 Control Plate

1. How to remove

(1) Remove the screw (A) retaining the control bracket 1 and remove the latter.
(2) Slide the control plate as indicated by the arrow and remove the control plate. (See Fig.2-2-29.)

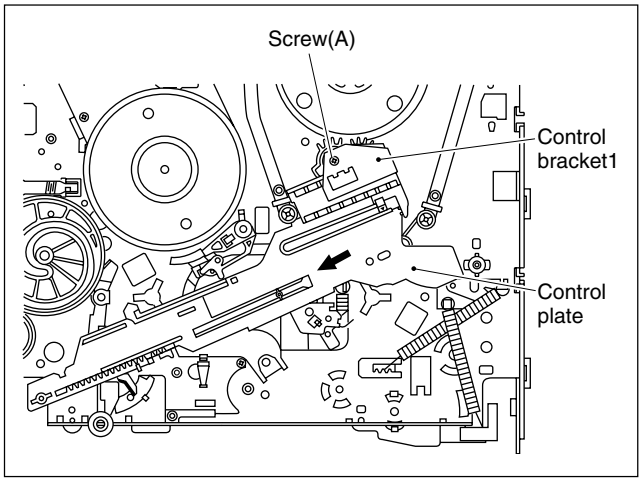


Fig. 2-2-29

2. How to install (Phase matching)

(1) Adjust the position of the idler arm assembly pin as indicated in Fig.2-2-30 (to the left of center of the R section).
(2) Bring the guide hole of the take-up lever into alignment with the hole at the control plate guide and fix the position by inserting a 1.5 mm hexagonal wrench.
(3) Install the control plate so that the section A of the loading arm gear shaft fits into the hole (A) of the control plate, the section B of the control plate guide into the hole (B), and the control plate comes under the section C of the rotary encoder guide and the section D of the loading arm gear shaft while press-fit the pole base assmebly (supply side) as indicated by the arrow. It is important that the tension arm assembly shaft is positioned closer toward you than the control plate. (See Fig.2-2-31.)
(4) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft. (See Fig.2-2-31.)
(5) Pull off the hexagonal wrench for positioning.

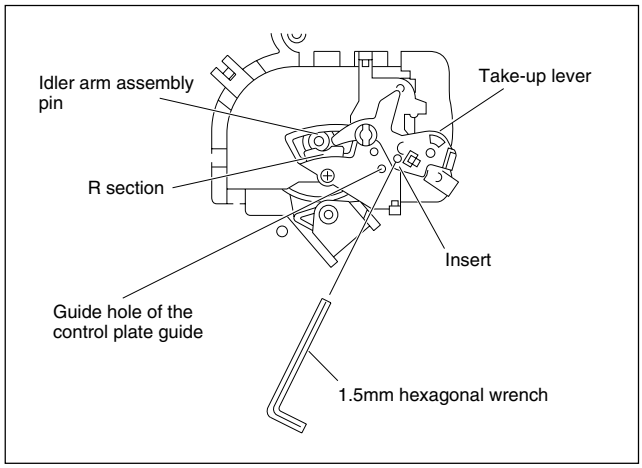


Fig. 2-2-30

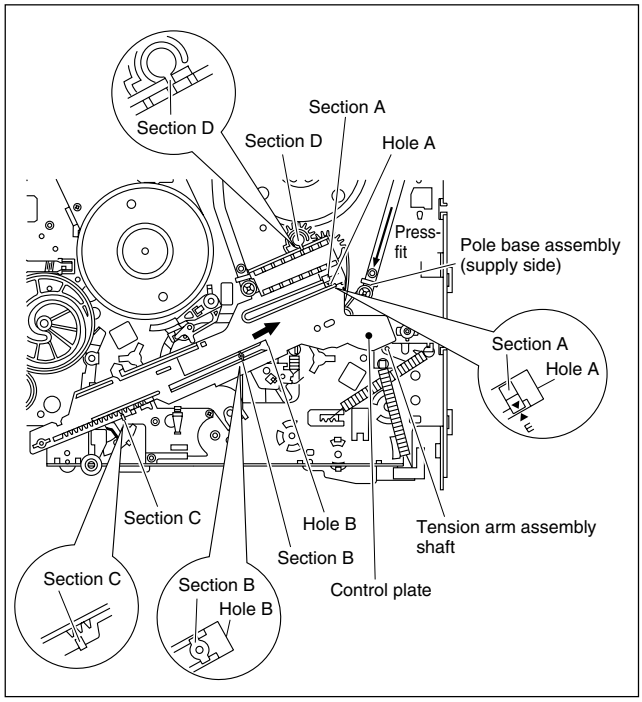


Fig. 2-2-31

2.2.16 Loading Arm Gear (supply or take-up side) and Loading Arm Gear Shaft

1. How to remove

(1) Remove the loading arm gear (supply side) by loosening the screw (A). (See Fig. 2-2-32.)
(2) Remove the screw (B) and remove the torsion arm from the pole base assembly (take-up side). (See Fig.2-2-32.)
(3) Turn the loading arm gear (take-up side) clockwise so that the notch of the loading arm gear (take-up side) is in alignment with the projection of the loading arm gear shaft and lift it.
Likewise, turn the loading arm counterclockwise so that the notch is in alignment with the projection and remove the loading arm gear (take-up side). (See Fig.2-2-32 and Fig. 2-2-33.)
(4) When removing the loading arm gear shaft, be sure of first removing the screw retaining the drum assembly (on the back side of the loading arm gear shaft). Then remove the screw (C) and remove the loading arm gear shaft by sliding it.

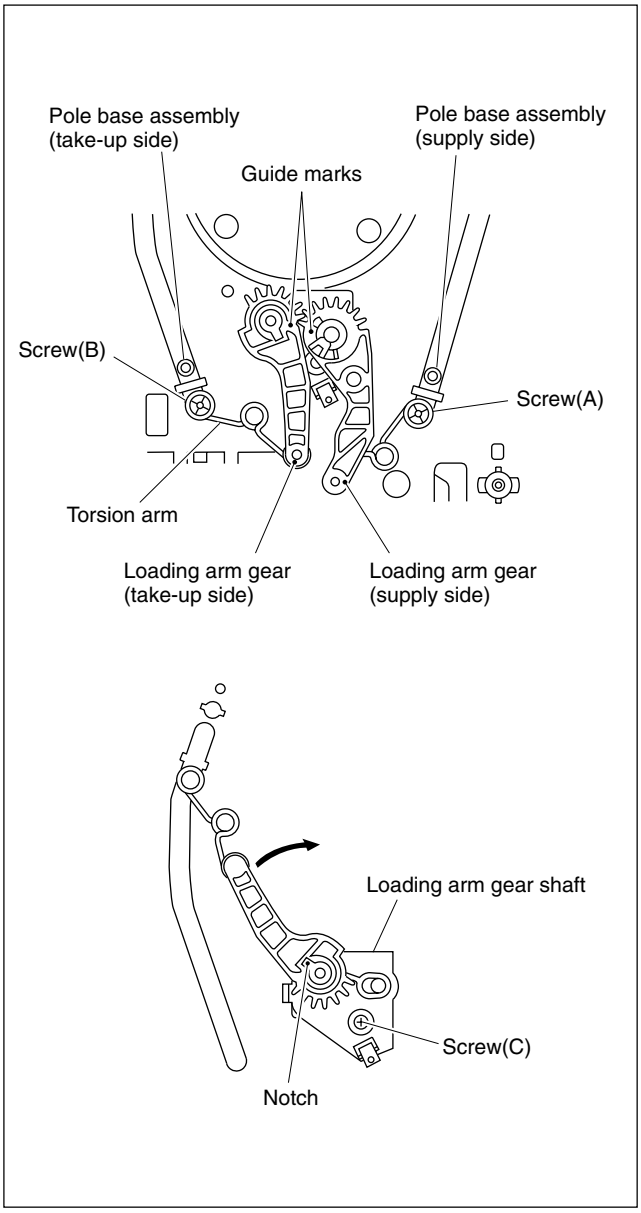


Fig. 2-2-32

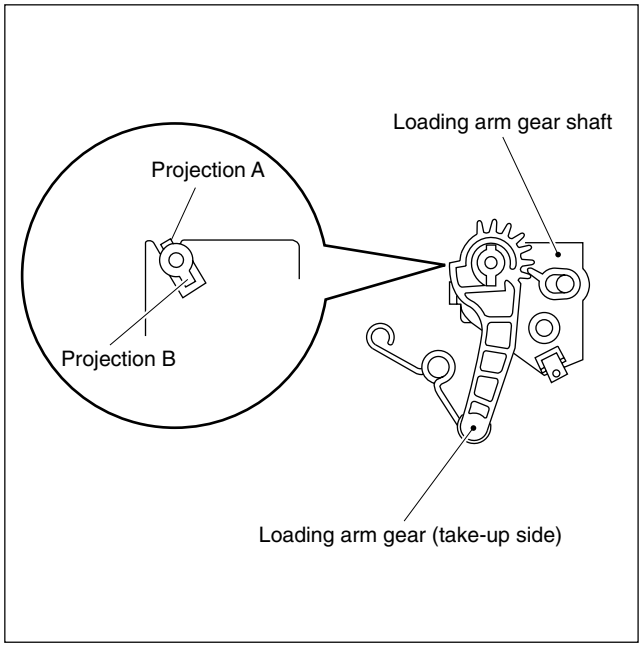


Fig. 2-2-33

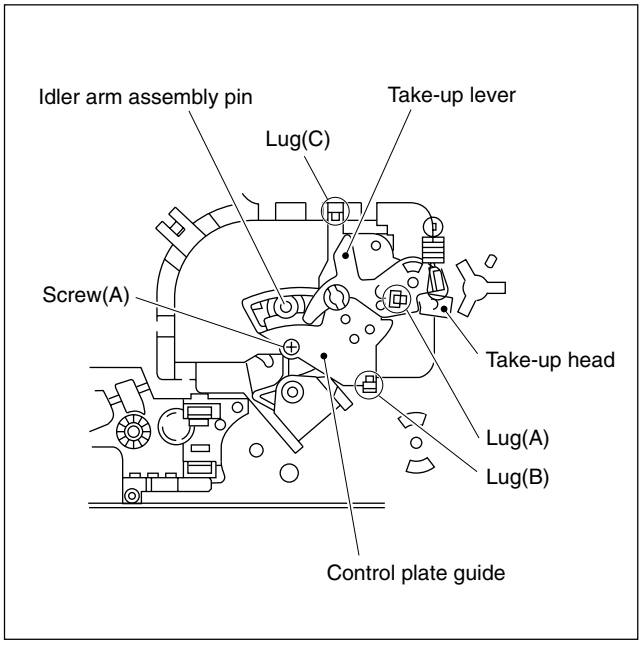


Fig. 2-2-34

2. How to install

(1) Align the notch of the loading arm gear (take-up side) to the projection B of the loading arm gear shaft and slip it over. Then rotate it clockwise for alignment with the projection A and slip it down to the bottom. (See Fig.2-2-33.)
(2) Then turn the loading arm gear (take-up side) counterclockwise. Hang the torsion arm on the pole base assembly (take-up side) and tighten the screw (B).
(3) Install the loading arm gear (supply side) so that the guide mark of the loading arm gear (take-up side) is in alignment with the guide mark of the loading arm gear (supply side). Then hang the torsion arm on the pole base assembly (supply side) and tighten the screw (A). (See Fig.2-2-32.)

2.2.17 Take-up Lever, Take-up Head and Control Plate Guide

(1) Remove the spring of the take-up lever from the main deck.
(2) Remove the lug (A) of the take-up lever from the main deck and pull out the take-up lever and the take-up head together.
(3) Remove the screw (A).
(4) Align the idler arm assembly pin in the center of the R section of the control plate guide, remove the control plate guide lugs (B) and (C) from the main deck, and remove the control plate guide.

2.2.18 Capstan Brake Assembly

1. How to remove

(1) Move the lug (A) of the capstan brake assembly in the arrow-indicated direction so that it comes into alignment with the notch of the main deck. (See Fig. 2-2-35.)
(2) Remove the lug (B) of the capstan brake assembly from the main deck and remove the capstan brake assembly.

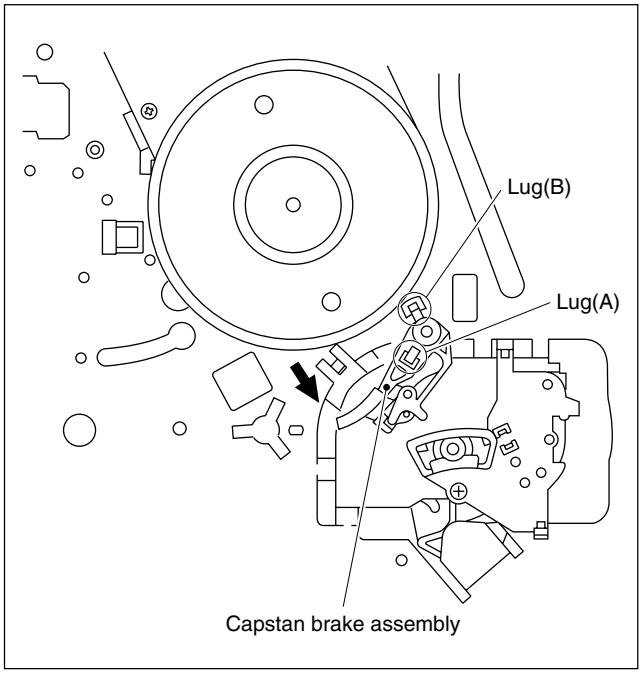


Fig. 2-2-35

2.2.19 Sub Brake Assembly (take-up side)

1. How to remove

(1) Remove the spring attached to the lid guide and sub brake assembly (take-up side).
(2) Bring the lug (A) of the sub brake assembly (take-up side) into alignment with the notch of the main deck.
(3) Remove the lugs (B) and (C) of the sub brake assembly (take-up side) from the main deck and remove the sub brake assembly (take-up side).

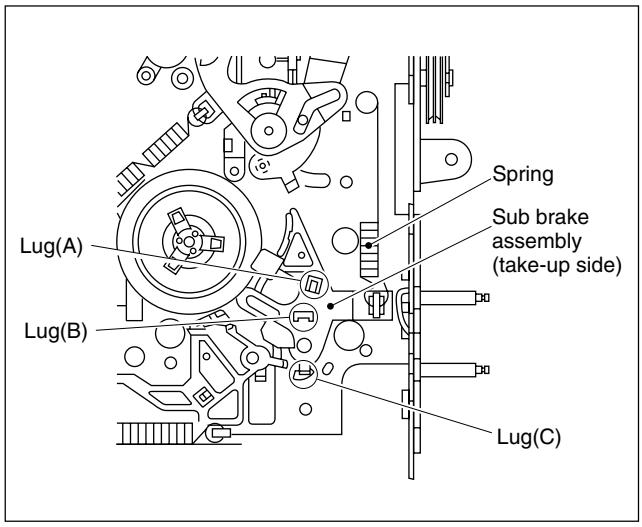


Fig. 2-2-36

2.2.20 Main Brake Assembly (take-up side), Reel Disk (take-up side) and Main Brake Assembly (supply side)

1. How to remove

(1) Move the main brake assembly (take-up side) in the arrow-indicated direction and remove the reel disk (take-up side).
(2) Remove the spring attached to the main brake assembly.
(3) Remove the lug (A) of the main brake assembly (take-up side) and pull out the lug (B) after bringing it into alignment with the main deck notch.
(4) Remove the lugs (C), (D) and (E) of the main brake assembly (supply side) from the main deck and pull them off. (See Fig.2-2-37.)

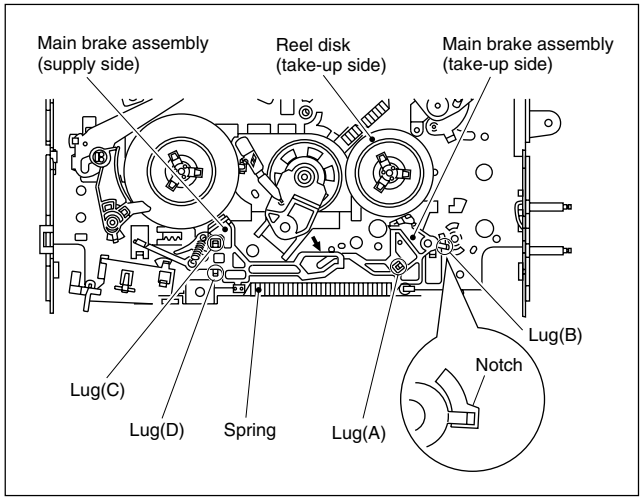


Fig. 2-2-37

(5) When installing the main brake assembly (take-up side), slide the brake lever in the direction as indicated by the arrow to prevent it from hitting the projection of the main brake assembly (take-up side). (See Fig.2-2-38.)

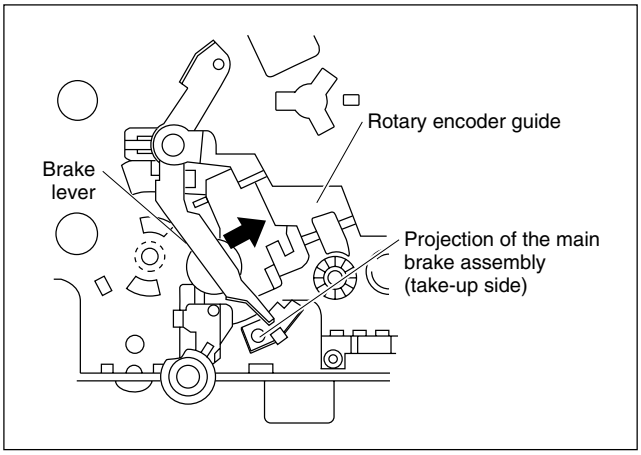


Fig. 2-2-38

2.2.21 Tension Brake Assembly, Reel Disk (supply side) and Tension Arm Assembly

1. How to remove

(1) Remove the three lugs of the tension brake assembly from the main deck and pull them off.
(2) Remove the reel disk (supply side) by loosening in the arrow-indicated direction the main brake assembly (supply side).
(3) Remove the tension spring on the back of the main deck. Then release the lug of the tension arm bearing in the arrow-indicated direction and draw out the tension arm assembly. (See Fig. 2-2-39.)

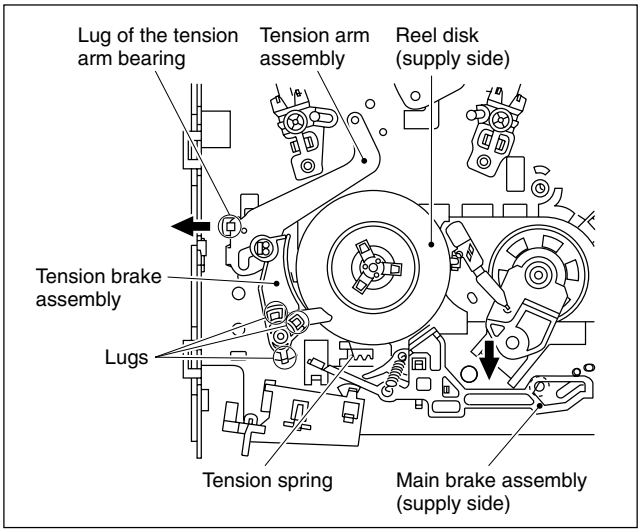


Fig. 2-2-39

2.2.22 Idler Lever, Idler Arm Assembly

1. How to remove

(1) Remove the lug of the idler lever from the main deck and remove the hook fitted in the idler arm assembly hole by lifting it.
(2) Remove the slit washer and pull out the idler arm assembly.

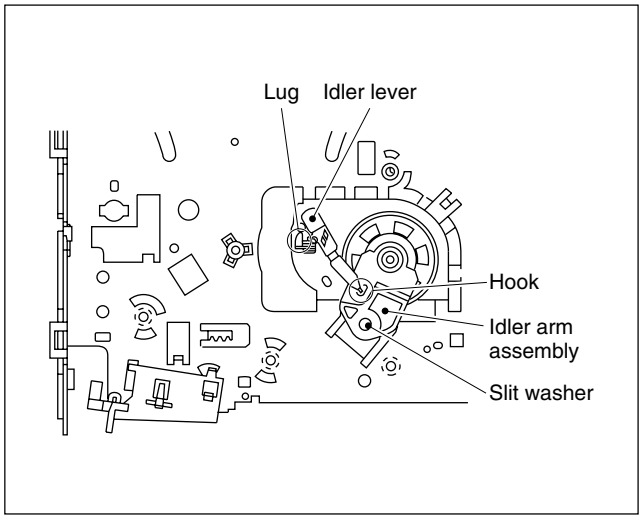


Fig. 2-2-40

2.2.23 Stator Assembly

(1) Remove the flat cable.
(2) Remove the two screws (A).
(3) Remove the stator assembly by lifting in the arrow-indicated direction. (Take care that the brush spring does not jump out.)
(4) After installation, be sure to perform the PB switching point adjustment according to the electrical adjustment procedure.

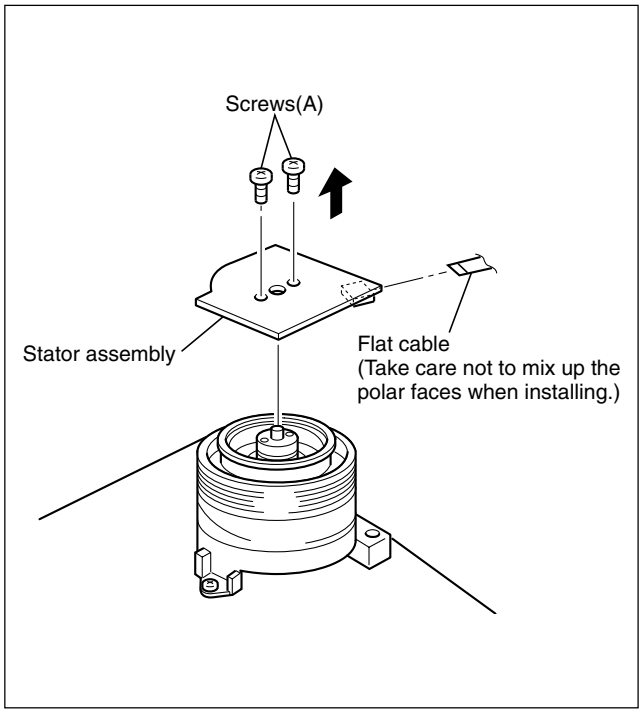


Fig. 2-2-41

2.2.24 Rotor Assembly

(1) Remove the stator assembly.
(2) Remove the two screws (B) and remove the rotor assembly.

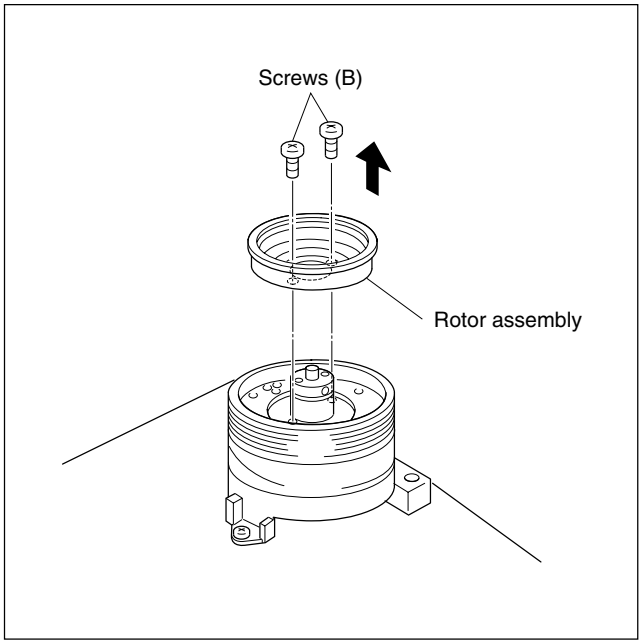


Fig. 2-2-42

Note: *When installing the rotor assembly, note that a normal picture cannot be obtained without ensuring the phase matching as mentioned below.*

(3) Match the phases of the upper drum assembly and the rotor assembly as indicated in Fig.2-2-43.
(4) Place the upper drum assembly hole (a) over the rotor assembly holes (b) (with three holes to be aligned) and tighten the two screws (B). (See Fig.2-2-43.)

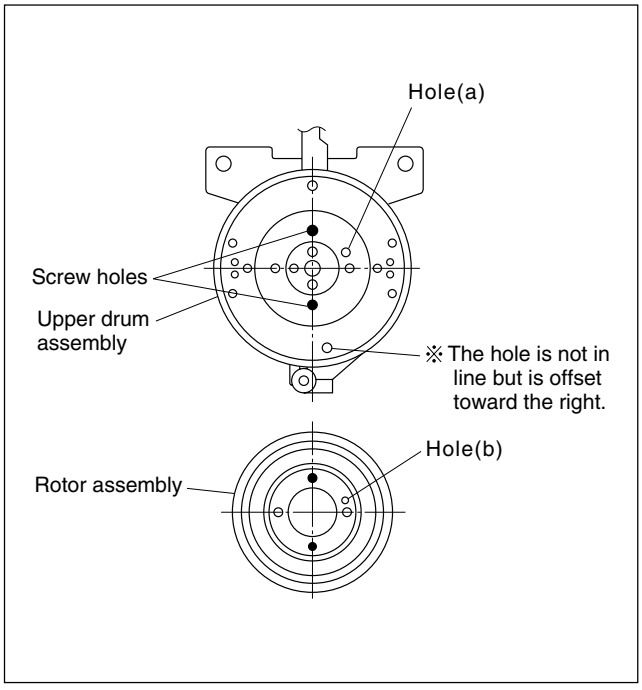


Fig. 2-2-43

2.2.25 Upper Drum Assembly

1. How to remove

(1) Remove the stator assembly and rotor assembly.
(2) Loosen the screw of the collar assembly using a 1.5 mm hexagonal wrench and remove the collar assembly. Also remove the brush, spring and cap at one time.
(3) Remove the upper drum assembly and remove the washer using tweezers.

Note: *When replacement is required, control the up-down movement of the brush. Never apply grease.*

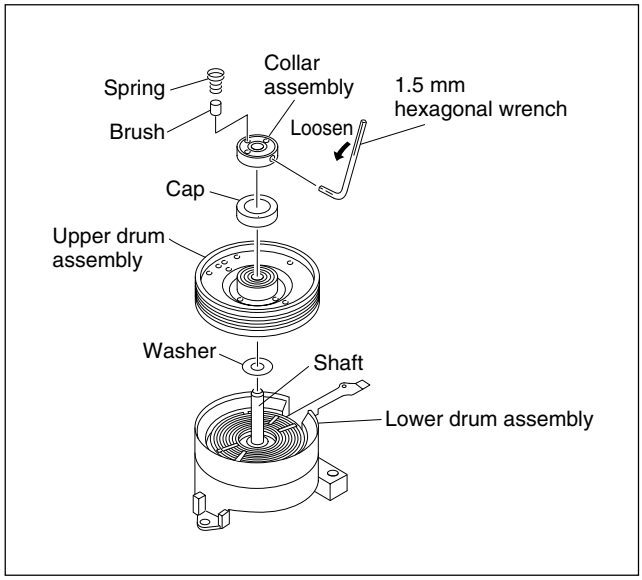


Fig. 2-2-44

2. How to install

(1) Clean the coil parts of the lower drum assembly and the newly installed upper drum assembly with an air brush in advance. (See Fig.2-2-45.)
(2) Install a new washer and upper drum assembly on the drum shaft. (See Fig.2-2-44.)

Note: *When replacing the upper drum assembly, replace it the together with the washer.*

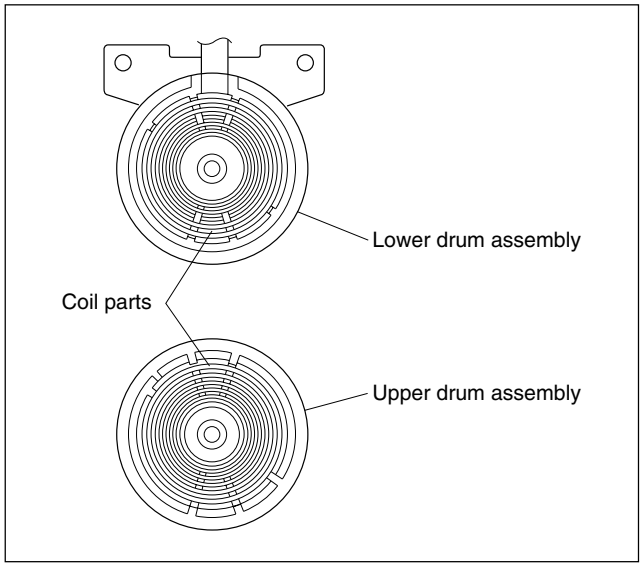


Fig. 2-2-45

(3) Install the cap to the upper drum assembly.
(4) Position the collar assembly as indicated in Fig.2-2-46 while controlling its up- down movement.

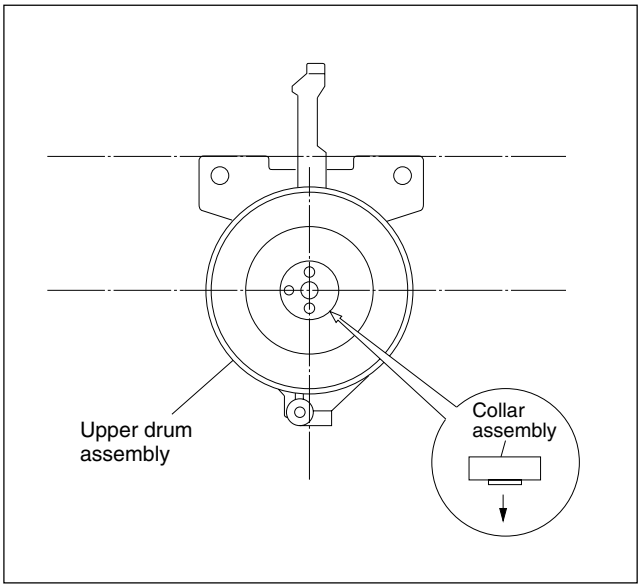


Fig. 2-2-46

(5) Secure the collar assembly in position with a hexagonal wrench while pressing its top with the fingers.

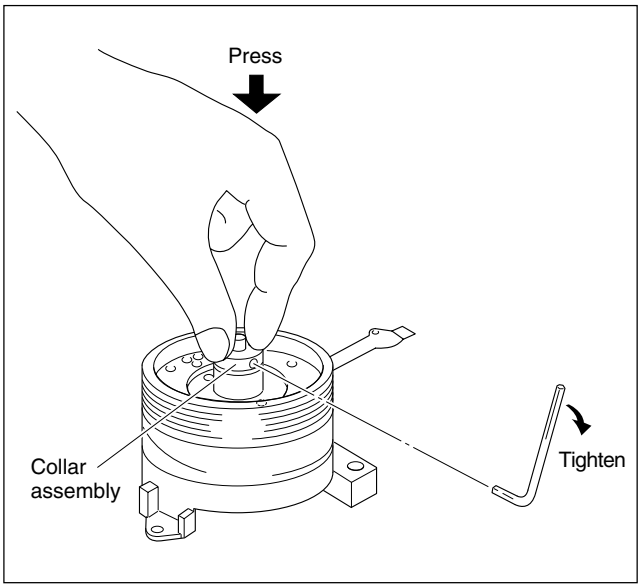


Fig. 2-2-47

(6) After installation, gently turn the upper drum assembly with your hand to make sure that it turns normally. Then install the brush and the spring.
(7) Install the rotor assembly and stator assembly according to Fig 2-2-41 and 2-2-42.
(8) When installation is complete, clean the upper drum assembly and lower drum assembly and carry out the following adjustments.

- PB switching point adjustment
- Slow tracking adjustment
- Compatibility adjustment (Be sure to check for compatibility for the EP (or LP) mode.)

2.3 COMPATIBILITY ADJUSTMENT

Notes:

- *Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the audio control head, drum assembly or any part of the tape transport system.*
- *To avoid any damage to the alignment tape while performing the compatibility adjustment, get a separate cassette tape (for recording and play back) ready to be used for checking the initial tape running behavior.*

2.3.1 Checking/Adjustment of FM Waveform Linearity

Signal	(A1) (A2)	• Alignment tape [MHP] • Alignment tape [MHP-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM) [Main board]
External trigger	(E)	• TP111 (D.FF) [Main board]
Adjustment part	(F)	• Guide roller [Mechanism assembly]
Specified value	(G)	• Flat V.PB FM waveform
Adjustment tool	(H)	• Roller driver [PTU94002]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(4) Make sure that there is no significant level drop of the V.PB FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (See Fig. 2-3-1.)
(5) Reduce the V.PB FM waveform while pressing the channel buttons (+, –) during playback. If a drop in level is found on the left side, turn the guide roller of the pole base assembly (supply side) with the roller driver to make the V.PB FM waveform linear.
If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the guide roller to make it linear. (See Fig. 2-3-3.)
(6) Make sure that the V.PB FM waveform varies in parallel and linearly with the tracking operation again. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
(7) Unload the cassette tape once, play back the alignment tape (A1) again and confirm the V.PB FM waveform.
(8) After adjustment, confirm that the tape wrinkling does not occur at the roller upper or lower limits. (See Fig. 2-3-4.)

[Perform step (9) adjustment only for the models equipped with SP mode and EP (or LP) mode.]

(9) Repeat steps (1) to (8) by using the alignment tape (A2).

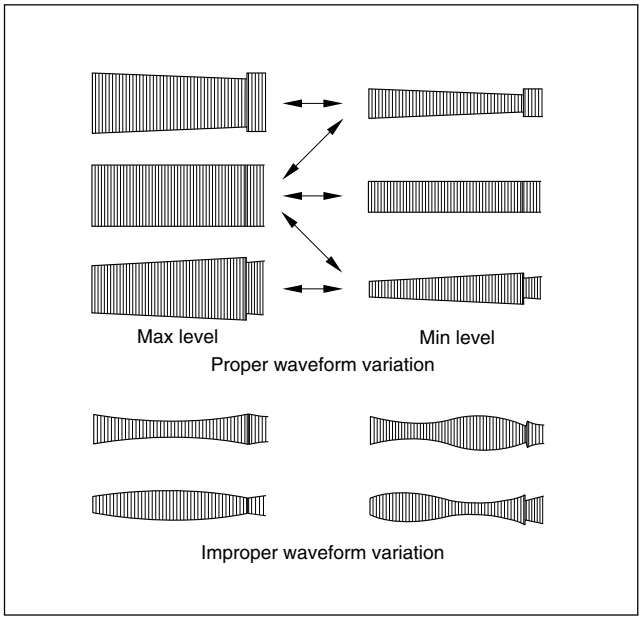


Fig. 2-3-1

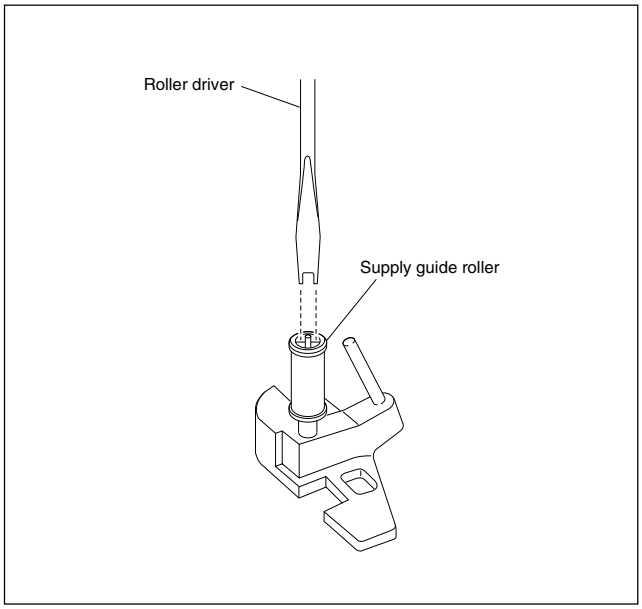


Fig. 2-3-2

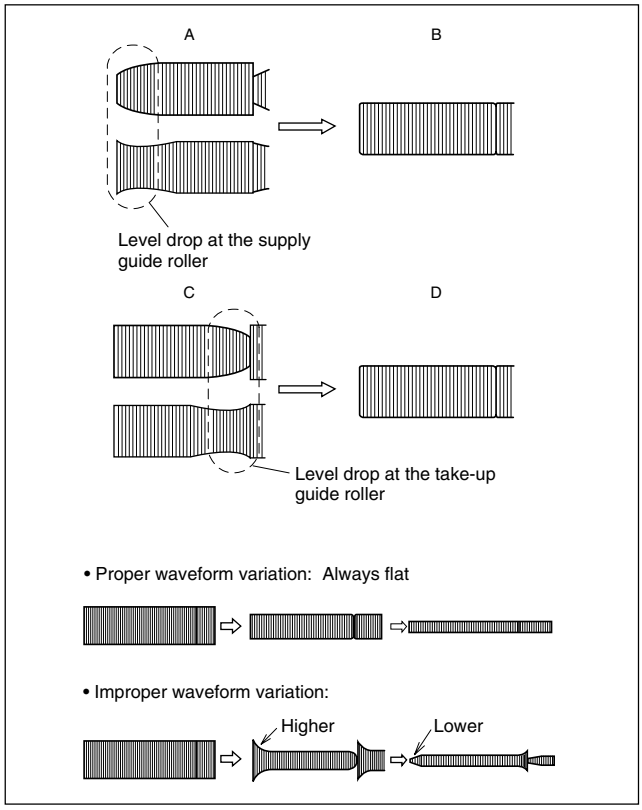


Fig. 2-3-3

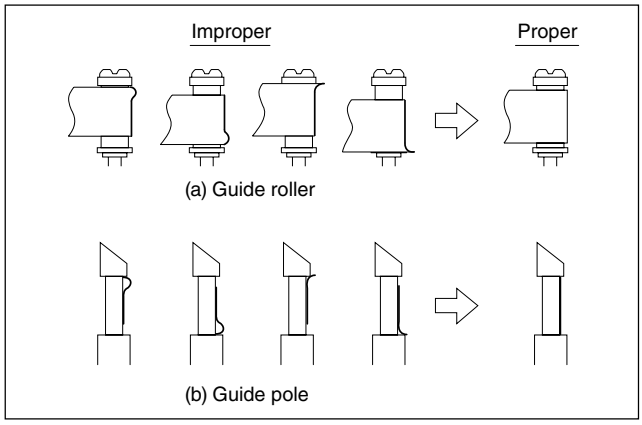


Fig. 2-3-4

2.3.2 Checking/Adjustment of the Height and Tilt of the Audio Control Head

Note:

- *Set a temporary level of the height of the A/C head in advance to make the adjustment easier after the A/C head has been replaced. (See Fig.2-2-15.)*

Signal	(A)	• Alignment tape [MHP]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• AUDIO OUT terminal • TP4001 (CTL. P) [Main board]
External trigger	(E)	• TP111 (D.FF) [Main board]
Adjustment part	(F)	• A/C head [Mechanism assembly]
Specified value	(G)	• Maximum waveform

(1) Play back the alignment tape (A).
(2) Apply the external trigger signal to D.FF (E), to observe the AUDIO OUT waveform and Control pulse waveform at the measuring points (D1) and (D2) in the ALT mode.
(3) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(4) Adjust the AUDIO OUT waveform and Control pulse waveform by turning the screws (1), (2) and (3) little by little until both waveforms reach maximum. The screw (1) and (3) are for adjustment of tilt and the screw (2) for azimuth.

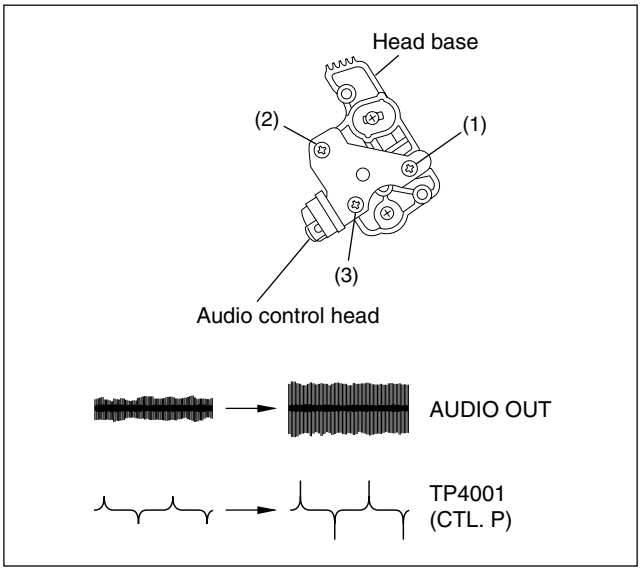


Fig. 2-3-5

2.3.3 Checking/Adjustment of the Audio Control Head Phase (X-Value)

Signal	(A1) (A2)	• Alignment tape [MHP] • Alignment tape [MHP-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM) [Main board]
External trigger	(E)	• TP111 (D.FF) [Main board]
Adjustment part	(F)	• A/C head base [Mechanism assembly]
Specified value	(G)	• Maximum V.PB FM waveform
Adjustment tool	(H)	• A/C head positioning tool [PTU94010]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(4) Loosen the screws (4) and (5), then set the A/C head positioning tool to the innermost projected part of the A/C head. (See Fig. 2-3-6.)
(5) Turn the A/C head positioning tool fully toward the capstan. Then turn it back gradually toward the drum and stop on the second peak point position of the V.PB FM waveform output level. Then tighten the screws (4) and (5).

[Perform steps (6) to (9) adjustments only for 2 Heads LP mode models.]

(6) Then play back the alignment tape (A2).
(7) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(8) Perform the tracking operation and make sure that the V.PB FM waveform is at its maximum.
(9) If it is not at maximum, loosen the screws (4) and (5), and turn the A/C head positioning tool to bring the A/C head to a position, around where the waveform reaches its maximum for the first time. Then tighten the screws (4) and (5).

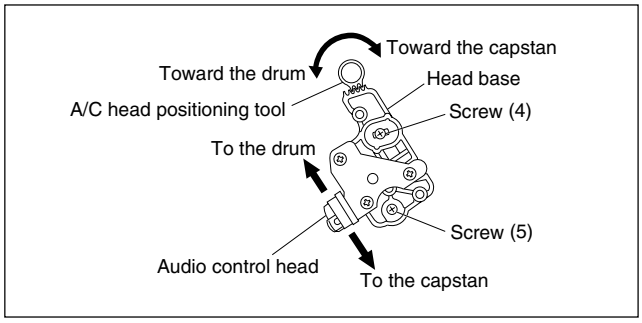


Fig. 2-3-6

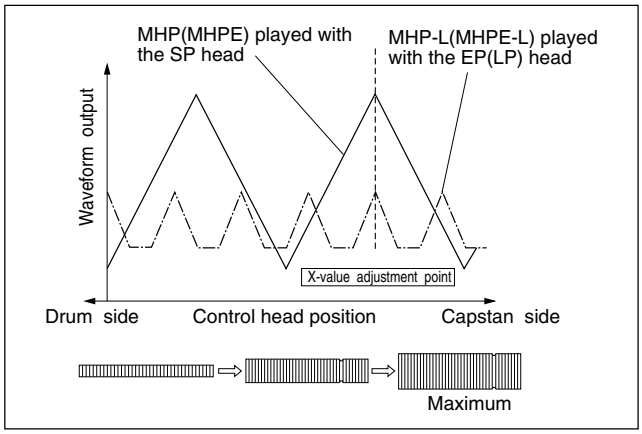


Fig. 2-3-7

2.3.4 Checking/Adjustment of the Standard Tracking Preset

Note:

- *When using the Jig RCU, set its custom code to match the custom code of the VCR.*

Signal	(A)	• Alignment tape [MHP-L]
Mode	(B)	• PB → Auto adjust
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM) [Main board]
External trigger	(E)	• TP111 (D.FF) [Main board]
Adjustment part	(F)	• Jig RCU: Code "50"
Specified value	(G)	• STOP mode (Maximum V.PB FM waveform)
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Play back the alignment tape (A).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Confirm that the automatic tracking operation is completed.
(4) Set the VCR to the Auto adjust mode by transmitting the code (F) twice from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed.
(5) If the VCR enters the eject mode, perform adjustment for the audio control head phase (X-value) again.

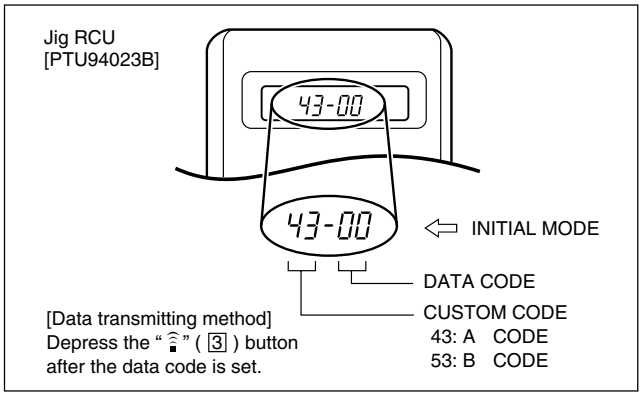


Fig. 2-3-8

2.3.5 Checking/Adjustment of the Tension Pole Position

Signal	(A)	• Back tension cassette gauge [PUJ48076-2]
Mode	(B)	• PB
Adjustment part	(F)	• Adjust pin [Mechansim assembly]
Specified value	(G)	• 25 - 51 gf•cm (2.45 – 5 × 10^{-3} N•m]

(1) Play back the back tension cassette gauge (A).
(2) Check that the indicated value on the left side gauge is within the specified value (G).
(3) If the indicated value is not within the specified value (G), perform the adjustment in a following procedure.
  1) Set the VCR to the mechanism service mode. (See 1.5 MECHANISM SERVICE MODE.)
  2) Set the VCR to the play back mode and adjust by turning adjustment pin to align the tension arm assembly edge with the main deck hole (A) on the right edge marker. (See Fig. 2-3-9)

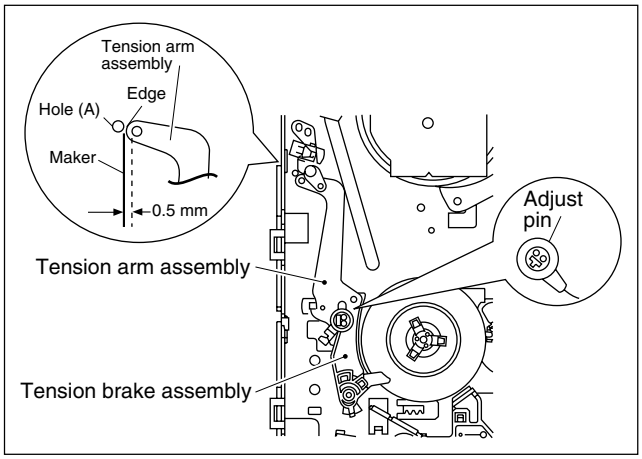
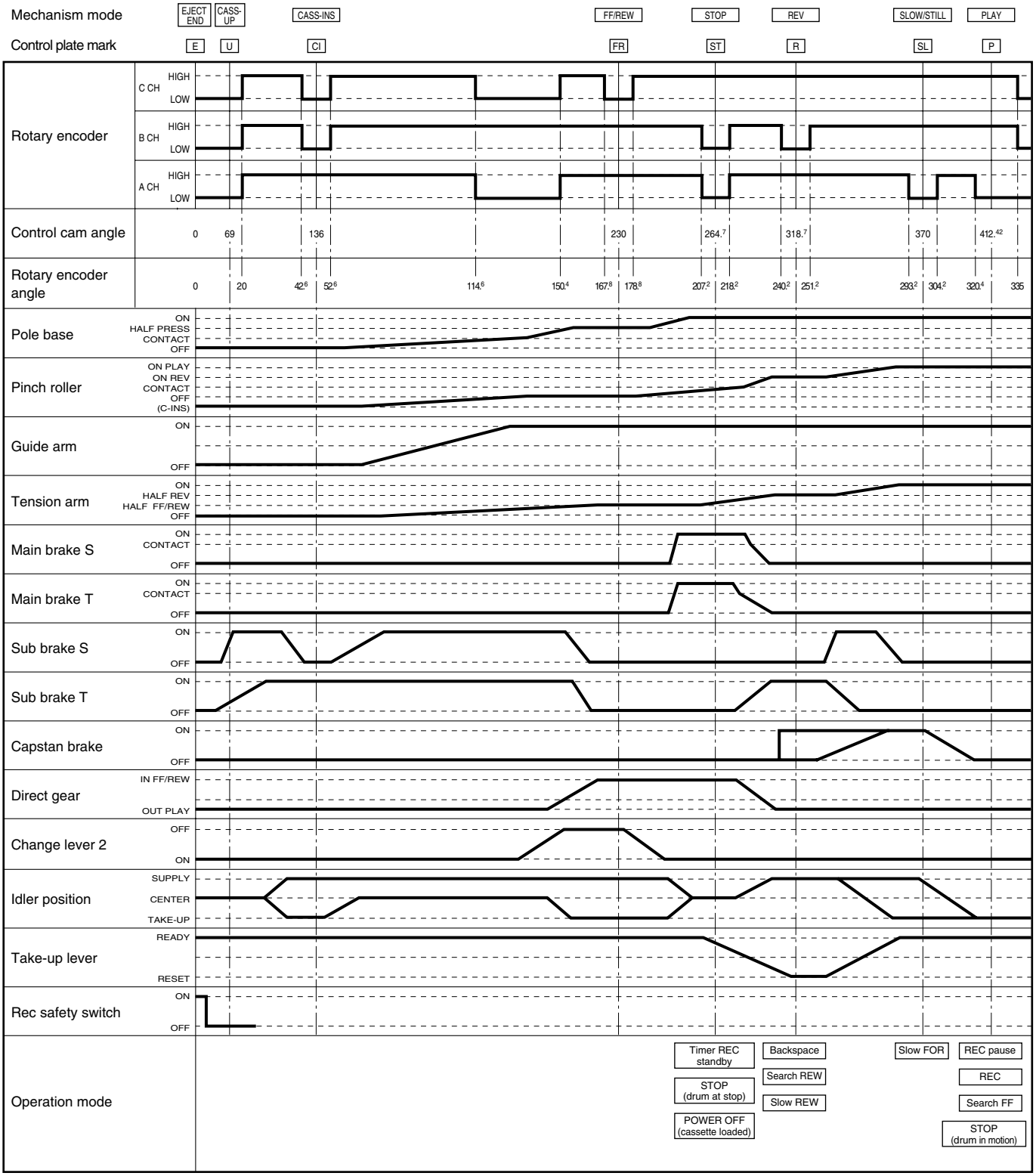


Fig. 2-3-9

Mechanism Timing Chart



SECTION 3
ELECTRICAL ADJUSTMENT

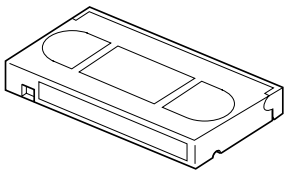
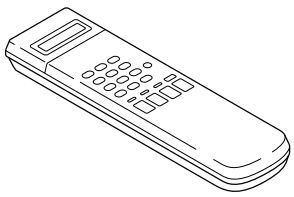
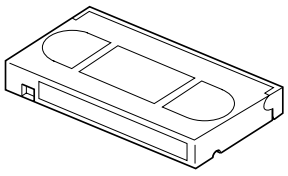
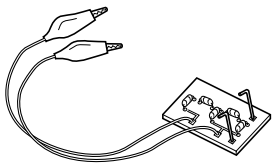
3.1 PRECAUTION

The following adjustment procedures are not only necessary after replacement of consumable mechanical parts or board assemblies, but are also provided as references to be referred to when servicing the electrical circuitry.
In case of trouble with the electrical circuitry, always begin a service by identifying the defective points by using the measuring instruments as described in the following electrical adjustment procedures. After this, proceed to the repair, replacement and/or adjustment. If the required measuring instruments are not available in the field, do not change the adjustment parts (variable resistor, etc.) carelessly.

3.1.1 Required test equipments

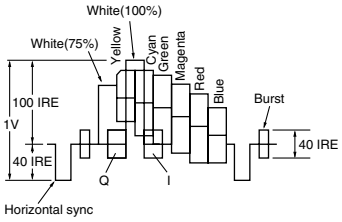
① Color television or monitor
② Oscilloscope: wide-band,dual-trace,triggered delayed sweep
③ Frequency counter
④ Audio level meter
⑤ Signal generator: RF/IF sweep/marker
⑥ Signal generator: NTSC color bar, stairstep
⑦ Recording tape
⑧ Digit-key remote controller(provided)

3.1.2 Required adjustment tools

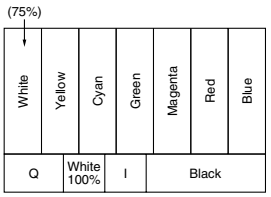
Alignment tape (SP,stairstep) MHP	Jig RCU PTU94023B
	
Alignment tape (S-VHS, SP/EP, color bar) MH-1H	LPF PTU93006
	

3.1.3 Color (colour) bar signal,Color (colour) bar pattern

● **Color bar signal [NTSC]**



● **Color bar pattern [NTSC]**



3.1.4 Switch settings and standard precautions

The SW settings of the VCR and the standard precautions for the electrical adjustments are as follows.

- *When using the Jig RCU, set its custom code to match the custom code of the VCR.*

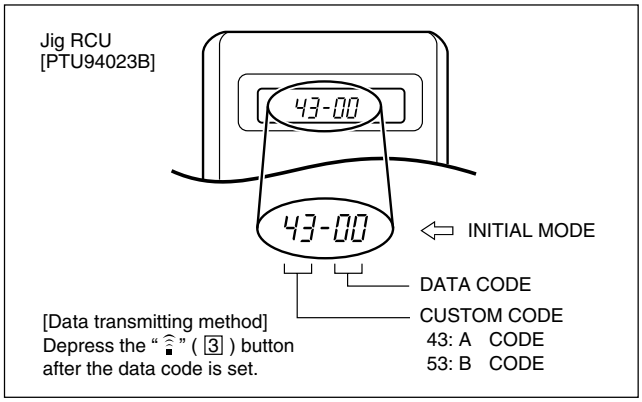


Fig. 3-1-4a Jig RCU

- *Set the switches as shown below unless otherwise specified on the relevant adjustment chart. The switches that are not listed below can be set as desired. If the VCR is not equipped with the functions detailed below, setup is not required.*

AUTO PICTURE/VIDEO CALIBRATION/ B.E.S.T./D.S.P.C.	OFF
PICTURE CONTROL/SMART PICTURE	NORMAL/NATURAL
VIDEO STABILIZER	OFF

- *Unless otherwise specified, all measuring points and adjustment parts are located on the Main board.*
- *In the Signal column of the adjustment chart, "Ext. S-input" means the Y/C separated video signal and "Ext. input means the composite video signal input.*

3.1.5 EVR Adjustment

Some of the electrical adjustments require the adjustment performed by the EVR system. The Main board assembly have EEPROMs for storing the EVR adjustment data and user setups.

Notes:

- *In the EVR adjustment mode, the value is varied with the channel buttons (+, –). The adjusted data is stored when the setting mode changes (from PB to STOP, when the tape speed is changed, etc.). Take care to identify the current mode of each adjustment item when making an adjustment.*
- *When changing the address setting in the EVR adjustment mode, use the Jig RCU or the remote controller having numeric keypad with which a numeric code can be directly input.*
  The remote control code of the Jig RCU corresponds to each of the digit keys on the remote controller as follows.

Digit-key	0	1	2	3	4	5	6	7	8	9
Code	20	21	22	23	24	25	26	27	28	29

- *As the counter indication and remaining tape indication are not displayed FDP during the EVR adjustment mode, check them on the TV monitor screen.*
- *When performing the EVR adjustment, confirm that the FDP indication is changed to the EVR mode, as shown below.*

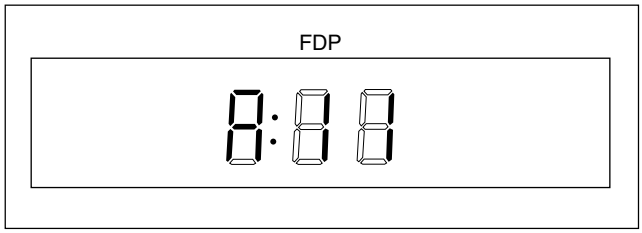


Fig. 3-1-5a EVR mode

3.2 SERVO CIRCUIT

3.2.1 Switching point

Signal	(A1) (A2)	• Stairstep signal • Alignment tape [MHP]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• VIDEO OUT terminal • TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)/slope : –
Adjustment part	(F)	• Jig RCU: Code "5A"
Specified value	(G)	• 7.5 ± 0.5H [MHP]
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Play back the signal (A1) of the alignment tape (A2).
(2) Apply the external trigger signal to D.FF (E) to observe the VIDEO OUT waveform and V.PB FM waveform at the measuring points (D1) and (D2).
(3) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(4) Adjust tracking by pressing the channel buttons (+, –) so that the V.PB FM waveform becomes maximum.
(5) Set the VCR to the Auto adjust mode by transmitting the code (F) from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed.
(6) If the VCR enters the eject mode, repeat steps (1) to (5) again.
(7) Play back the alignment tape (A2) again, confirm that the switching point is the specified value (G).

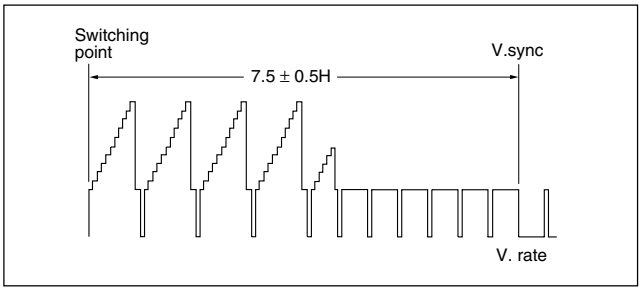


Fig. 3-2-1a Switching point

3.2.2 Slow tracking preset

Signal	(A1) (A2)	• Ext. input • Color bar signal
Mode	(B1) (B2)	• S-VHS • REC (SP/EP) → Slow PB
Measuring point	(D)	• TV-Monitor
Adjustment part	(F)	• Jig RCU: Code "71" or "72"
Specified value	(G)	• Minimum noise
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Record the signal (A2) in the SP mode, and play back the recorded signal.
(2) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(3) Set the VCR to the FWD slow mode.
(4) Transmit the code (F) from the Jig RCU to adjust so that the noise bar becomes the specified value (G) on the TV monitor in the slow mode.
(5) Set the VCR to the Stop mode.
(6) Confirm that the noise bar is (G) on the TV monitor in the slow mode.
(7) Repeat steps (3) to (6) in the REV slow mode.
(8) Repeat steps (1) to (7) in the EP mode.

Note:

- *For FWD slow playback, transmit the code "08" from the Jig RCU to enter the slow playback mode, and transmit the code "D0" for REV slow mode.*

3.3 VIDEO CIRCUIT

3.3.1 D/A level

Signal	(A1) (A2)	• Ext. S-input / Ext. input • Color bar signal [NTSC]
Mode	(B1) (B2)	• S-VHS • EE
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• IC501 - pin 19 (V TO OSD)
Adjustment part	(F)	• VR1201 (D/A LEVEL ADJ) [2D DIGITAL board]
Specified value (Note)	(G)	• 2.05 ± 0.03 Vp-p (reference value)

(1) Observe the VIDEO OUT waveform at the measuring point (D).
(2) Check the Y level value when the External S-input (Y/C separated video signal).
(3) Switch the input signal to the External input (composite video signal), and adjust the adjustment part (F) so that the Y level becomes the same value observed in step (2).

Note:

- *The specified value (G) is just a reference value to be obtained when the External S-Video (Y/C separated video) signal is input. In actual adjustment, set it to the value observed in step (2).*

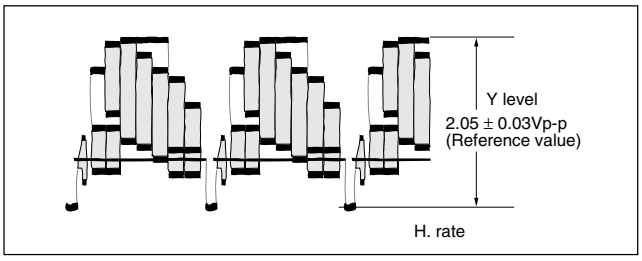


Fig. 3-3-1a D/A level

3.3.2 EE Y level

Signal	(A1) (A2)	• Ext. input • Color bar signal [NTSC]
Mode	(B)	• EE
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• Y OUT terminal (75Ω terminated)
EVR mode EVR address	(F1) (F2)	• Jig RCU: Code "57" • A:11 (Press remote controller "1" key twice)
Specified value	(G)	• 1.00 ± 0.05 Vp-p
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Observe the Y OUT waveform at the measuring point (D).
(2) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(3) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(4) Adjust with the channel buttons (+, –) on the VCR (or on the remote controller) so that the Y level of the Y OUT waveform becomes the specified value (G).
(5) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)

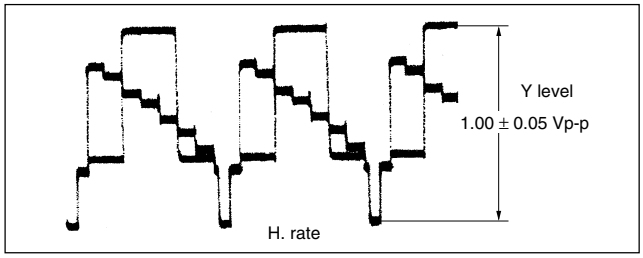


Fig. 3-3-2a EE Y level

3.3.3 REC color (colour) level

Signal	(A1) (A2) (A3)	• Alignment tape [MH-1H] • Ext. input • Color bar signal [NTSC]
Mode	(B1) (B2) (B3)	• S-VHS • PB • REC (SP/EP) → PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• TP106 (PB. FM) • PB color output of the LPF
External trigger	(E)	• TP111 (D.FF)
EVR mode EVR address	(F1) (F2)	• Jig RCU: Code "57" • A:02 (Press remote controller "0" and "2" keys)
Specified value	(G)	• SP: "B" x 125 ± 5% • EP: "B" x 125 ± 5%
Adjustment tool	(H1) (H2) (H3)	• Jig RCU [PTU94023B] • Digit-key remote controller • LPF[PTU93006] (See Fig. 3-3-3a.)

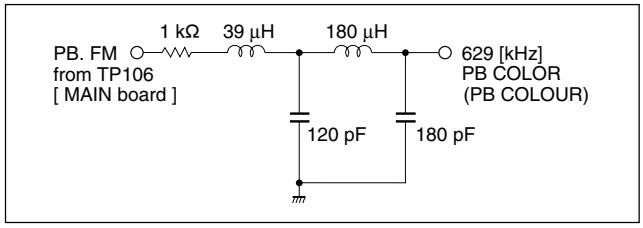


Fig. 3-3-3a LPF

(1) Connect the adjustment tool (H3) to the measuring point (D1).
(2) Apply the external trigger signal to D.FF (E) to observe the PB color (colour) waveform at the measuring point (D2).
(3) Play back the SP signal (A3) of the alignment tape (A1).
(4) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(5) Adjust tracking by pressing the channel buttons (+, –) so that the PB color (colour) waveform becomes maximum. Make a note of the higher PB color (colour) level as "B" at this time.
(6) Record the signal (A3) in the S-VHS SP mode, and play back the recorded signal.
(7) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(8) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(9) Adjust with the channel buttons (+, –) on the VCR (or on the remote controller) so that the higher level channel becomes the specified value (G) of the note "B" level as shown in Fig. 3-3-3b. (Adjust before recording, then confirm it by playing back.)

(10) After adjustment, record the signal (A3) then playing it back again. At this time, confirm that there is no inverting phenomenon or noise appearing on the playback screen.
(11) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)
(12) Repeat steps (3) to (11) in the S-VHS EP mode.

Note:

- *After adjusting, always perform the confirmation and re-adjustment of the item 3.4.1.*

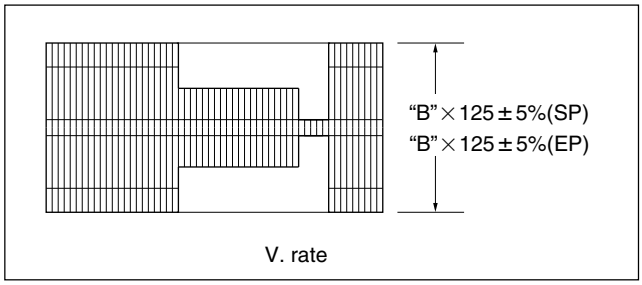


Fig. 3-3-3b REC color (colour) level

3.3.4 PB Y level (S-VHS/VHS)

Signal	(A1) (A2)	• Ext. input • Color bar signal [NTSC]
Mode	(B1) (B2)	• S-VHS/VHS • REC (SP) → PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• Y OUT terminal (75Ω terminated)
EVR mode EVR address	(F1) (F2)	• Jig RCU: Code "57" • A:11 (Press remote controller "1" key twice)
Specified value	(G)	• 1.00 ± 0.05 Vp-p
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Observe the Y OUT waveform at the measuring point (D).
(2) Record the signal (A2) in the S-VHS SP mode, and play back the recorded signal.
(3) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(4) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(5) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(6) Adjust with the channel buttons (+, –) on the VCR (or on the remote controller) so that the Y level of the Y OUT waveform becomes the specified value (G).
(7) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)
(8) Repeat steps (2) to (7) in the VHS SP mode.

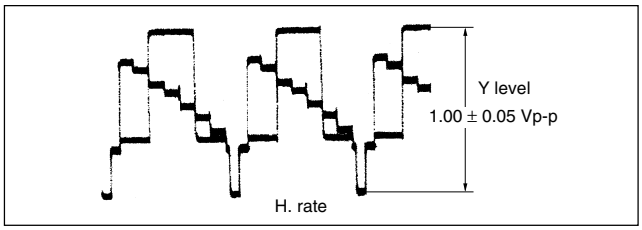


Fig. 3-3-4a PB Y level

3.3.5 Video EQ (Frequency response)

Signal	(A1) (A2)	• Ext. S-input • Video sweep signal
Mode	(B1) (B2) (B3)	• S-VHS • REC (SP/EP) → PB • Picture Control (Smart Picture) REC: Normal (Natural) PB: Edit (Distinct)
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• Y OUT terminal (75Ω terminated)
External trigger	(E)	• TP111 (D.FF)
EVR mode EVR address	(F1) (F2)	• Jig RCU: Code "57" • A:03 (Press remote controller "0" and "3" keys)
Specified value	(G)	• SP: 2.8 ± 0.3 div. (–3 ± 1 dB) • EP: 2.8 ± 0.3 div. (–3 ± 1 dB)
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Apply the external trigger signal to D.FF (E) to observe the Y OUT waveform at the measuring point (D).
(2) Record the signal (A2) in the S-VHS SP mode, and play back the recorded signal.
(3) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(4) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(5) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(6) Set the 100 kHz marker level of the channel having higher 3.58 MHz marker level of the Y OUT waveform [signal (A2)] to the "4" scale on the oscilloscope. In this condition, adjust with the channel buttons (+, –) on the VCR (or on the remote controller) so that the 3.58 MHz marker level reaches the specified value (G).
(7) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)
(8) Repeat steps (2) to (7) in the S-VHS EP mode.

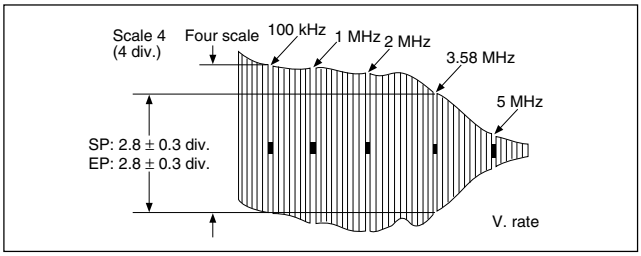


Fig. 3-3-5a Video EQ (Frequency Response)

3.3.6 AUTO PICTURE initial setting

Signal	(A1) (A2) (A3)	• Ext. input • Video: Optional • VHS tape
Mode	(B)	• EE → Auto adjust (SP/EP REC → PB)
Adjustment part	(F)	• Jig RCU : Code "58"
Specified value	(G)	• STOP mode
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Insert the cassette tape (A3).
(2) Set the VCR to the Auto adjust mode by transmitting the code (F) from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed. When the VCR enters the eject mode, repeat steps (1) to (2) again.

3.4 AUDIO CIRCUIT

Notes:

- *This adjustment should be done after the "REC color (colour) level adjustment" for the video circuit has been completed.*
- *GND (Ground) should be taken from the Tuner shield case.*

3.4.1 Audio REC FM

Signal	(A1) (A2) (A3)	• Ext. input • Audio: No signal • Video: Color bar signal [NTSC]
Mode	(B1) (B2)	• S-VHS • REC (EP) → PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP2253 (A. PB. FM)
External trigger	(E)	• TP111 (D.FF)
EVR mode EVR address	(F1) (F2)	• Jig RCU: Code "57" • A: 30 (Press remote controller "3" and "0" keys.)
Specified value	(G1) (G2)	• 600 ± 100 mVp-p • More than 400 mVp-p
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Apply the external trigger signal to D.FF (E) to observe the Audio PB FM waveform at the measuring point (D).
(2) Record the signal (A3) with no audio signal input in the S-VHS EP mode, and play back the recorded signal.
(3) Press the channel buttons (+, –) simultaneously to enter the manual tracking mode. This also brings tracking to the center (centre).
(4) If the A.PB FM level is not within the specified value (G1), perform the adjustment in a following procedure.
(5) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(6) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(7) Adjust with the channel buttons (+, –) on the VCR (or on the remote controller) so that the A.PB FM level of the higher channel level becomes the specified value (G1). (Adjust before recording, then confirm it by playing back.)
(8) If the specified value (G1) is not obtained, adjust with the channel buttons (+, –) so that the waveform level of the lower channel level becomes the specified value (G2). (Adjust before recording, then confirm it by playing back.)
(9) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)

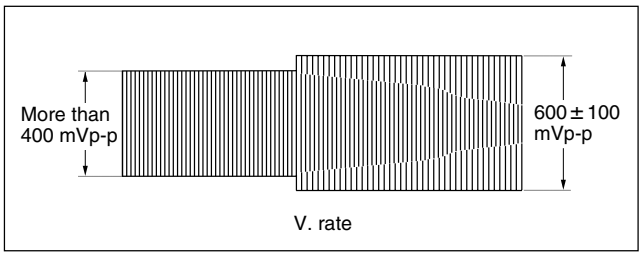


Fig. 3-4-1a Audio REC FM

3.5 DEMODULATOR CIRCUIT

Note:

- *Unless otherwise specified,set an audio multiplex TV signal generator as follows;*
  RF signal : 70 dBμ / 75Ω, color bar 87.5% modulation.

3.5.1 Input level

Signal	(A)	• RF signal (Audio: mono 300 Hz)
Mode	(B)	• Tuner • EE
Equipment	(C)	• Audio level meter
Measuring point	(D)	• IC1501 pin 26 [Demod board]
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code "57" • A : 20 (Press remote controller "2" and "0" keys.)
Specified value	(G)	• 500 ± 10 mVrms
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Set an audio signal mode of the RF signal generator to mono 300 Hz.
(2) Connect the equipment (C) to the measuring point (D).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the level of the measuring point (D) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)

3.5.2 Stereo VCO

Signal	(A)	• No signal
Mode	(B)	• Tuner • EE
Equipment	(C)	• Frequency counter
Measuring point Short point	(D1) (D2)	• IC1501 pin 26 [Demod board] • C1505(–) terminal [Demod board]
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code "57" • A : 21 (Press remote controller "2" and "1" keys.)
Specified value	(G)	• 15.73 ± 0.1 kHz
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Connect the short wire between the short point (D2) and the GND (Ground).
(2) Connect the equipment (C) to the measuring point (D1).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the frequency of the measuring point (D1) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)
(7) Disconnect the short wire between the short point (D2) and the GND (Ground).

3.5.3 Stereo filter

Signal	(A)	• RF signal (Audio: No signal)
Mode	(B)	• Tuner • EE
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• IC1501 pin 26 [Demod board]
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code "57" • A : 22 (Press remote controller "2" key twice.)
Specified value	(G)	• Minimum level
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Set an audio signal mode of the RF signal generator to no signal.
(2) Connect the equipment (C) to the measuring point (D).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the level of the measuring point (D) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)

3.5.4 Separation - 1

Signal	(A)	• RF signal (Audio: L-ch 300 Hz 14% modulated)
Mode	(B)	• Tuner • EE
Equipment	(C)	• Audio level meter
Measuring point	(D)	• IC1501 pin 26 [Demod board]
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code "57" • A : 23 (Press remote controller "2" and "3" keys.)
Specified value	(G)	• Minimum level
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Set an audio signal mode of the RF signal generator to alternate L-ch 300 Hz 14% modulated.
(2) Connect the equipment (C) to the measuring point (D).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the level of the measuring point (D) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)

3.5.5 Separation - 2

Signal	(A)	• RF signal (Audio: L-ch 5 kHz 14% modulated)
Mode	(B)	• Tuner • EE
Equipment	(C)	• Audio level meter
Measuring point	(D)	• IC1501 pin 26 [Demod board]
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code "57" • A : 24 (Press remote controller "2" and "4" keys.)
Specified value	(G)	• Minimum level
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Set an audio signal mode of the RF signal generator to alternate L-ch 5 kHz 14% modulated.
(2) Connect the equipment (C) to the measuring point (D).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the level of the measuring point(D) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)

3.5.6 SAP VCO

Signal	(A)	• No. signal
Mode	(B)	• Tuner • EE
Equipment	(C)	• Frequency counter
Measuring point Short point	(D1) (D2)	• IC1501 pin 26 [Demod board] • C1505 (–) terminal [Demod board]
EVR mode EVR address	(F1) (F2)	• Jig RCU : Code "57" • A : 25 (Press remote controller "2" and "5" keys.)
Specified value	(G)	• 78.67 ± 0.5 kHz
Adjustment tool	(H)	• Jig RCU [PTU94023B] • Digit-key remote controller

(1) Connect the short wire between the short point (D2) and the GND (Ground).
(2) Connect the equipment (C) to the measuring point (D1).
(3) Set the VCR to the EVR mode by transmitting the code (F1) from the Jig RCU.
(4) Set the EVR address to (F2) by pressing the button of the digit-key remote controller.
(5) Adjust with the channel buttons (+,–) on the VCR (or on the remote controller) so that the frequency of the measuring point (D1) becomes the specified value (G).
(6) Release the EVR mode of the VCR by transmitting the code (F1) from the Jig RCU again. (When the EVR mode is released, the adjusted data is memorized.)
(7) Disconnect the short wire between the short point (D2) and the GND (Ground).

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

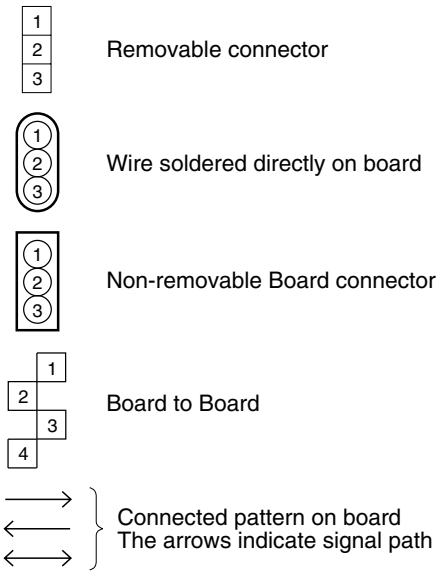
1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

2. Indications of control voltage

AUX : Active at high

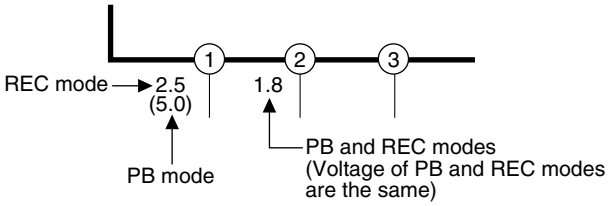
$\overline{\text{AUX}}$ or AUX(L) : Active at low

3. Interpreting Connector indications



4. Voltage measurement

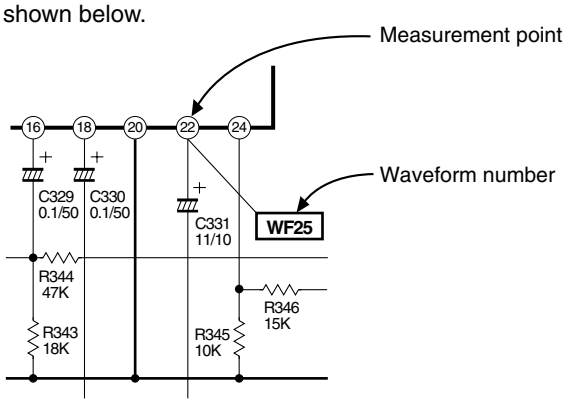
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



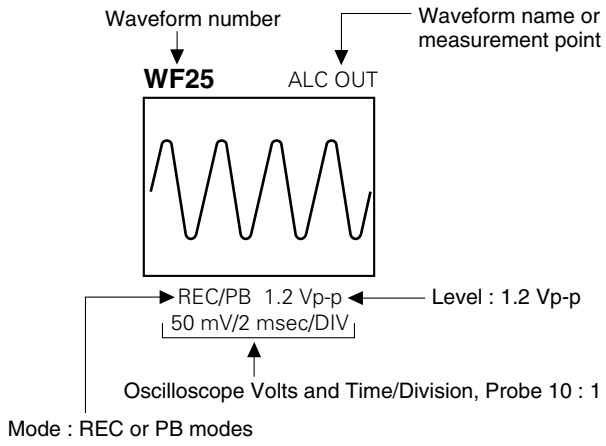
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.



5) Waveform indications



6. Signal path Symbols

The arrows indicate the signal path as follows.

Playback signal path

Playback and recording signal path

Recording signal path
(including E-E signal path)

Capstan servo path

Drum servo path

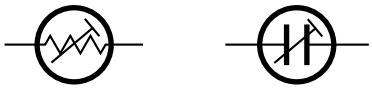
(Example)

R-Y Playback R-Y signal path

Y Recording Y signal path

7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

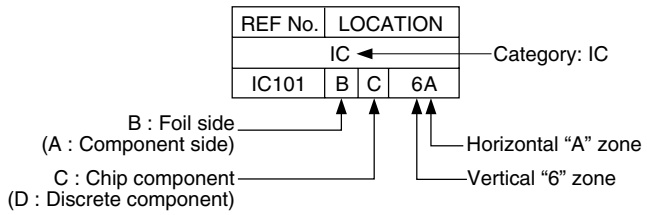
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

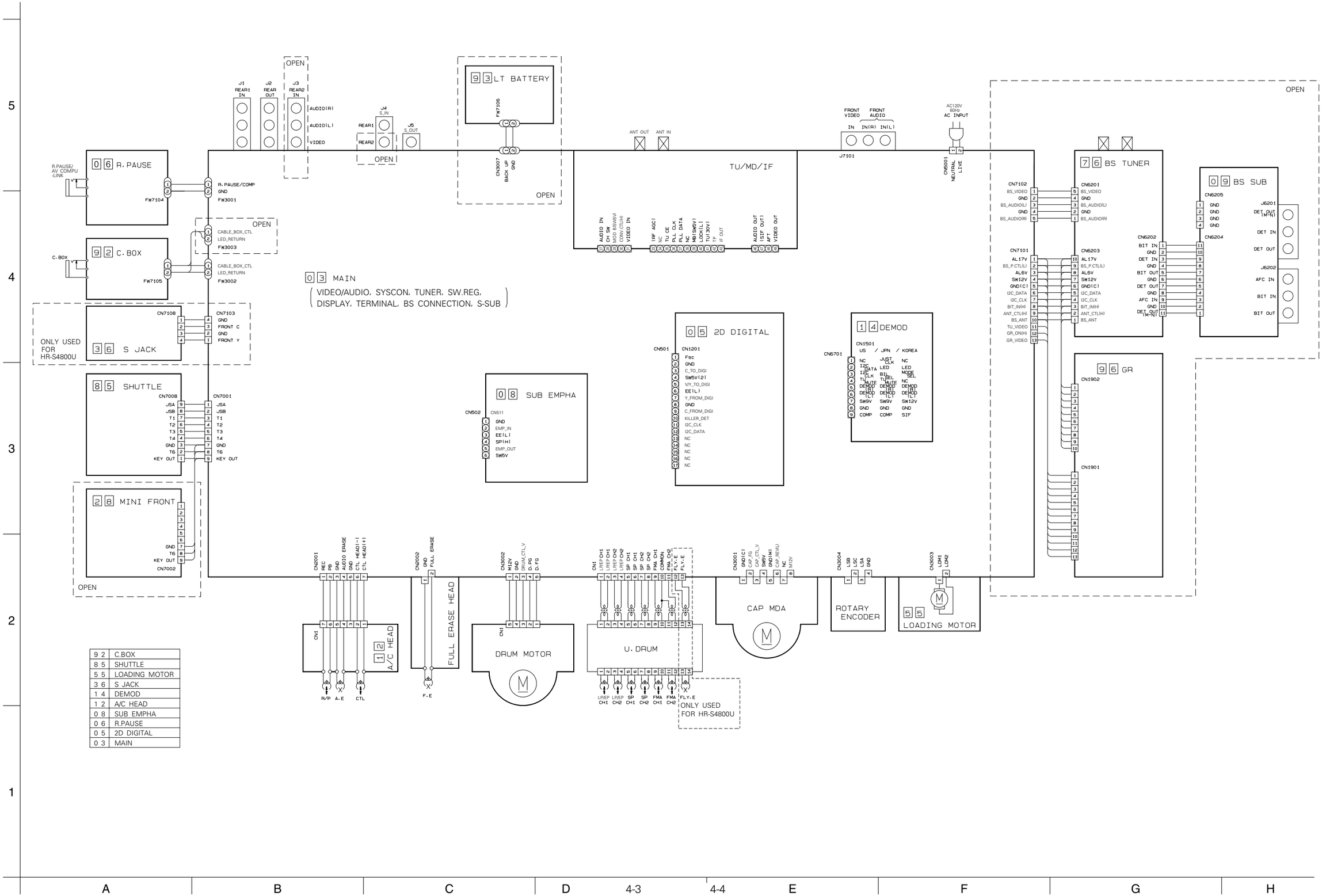
Parts location are indicated by guide scale on the circuit board.



Note:

For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

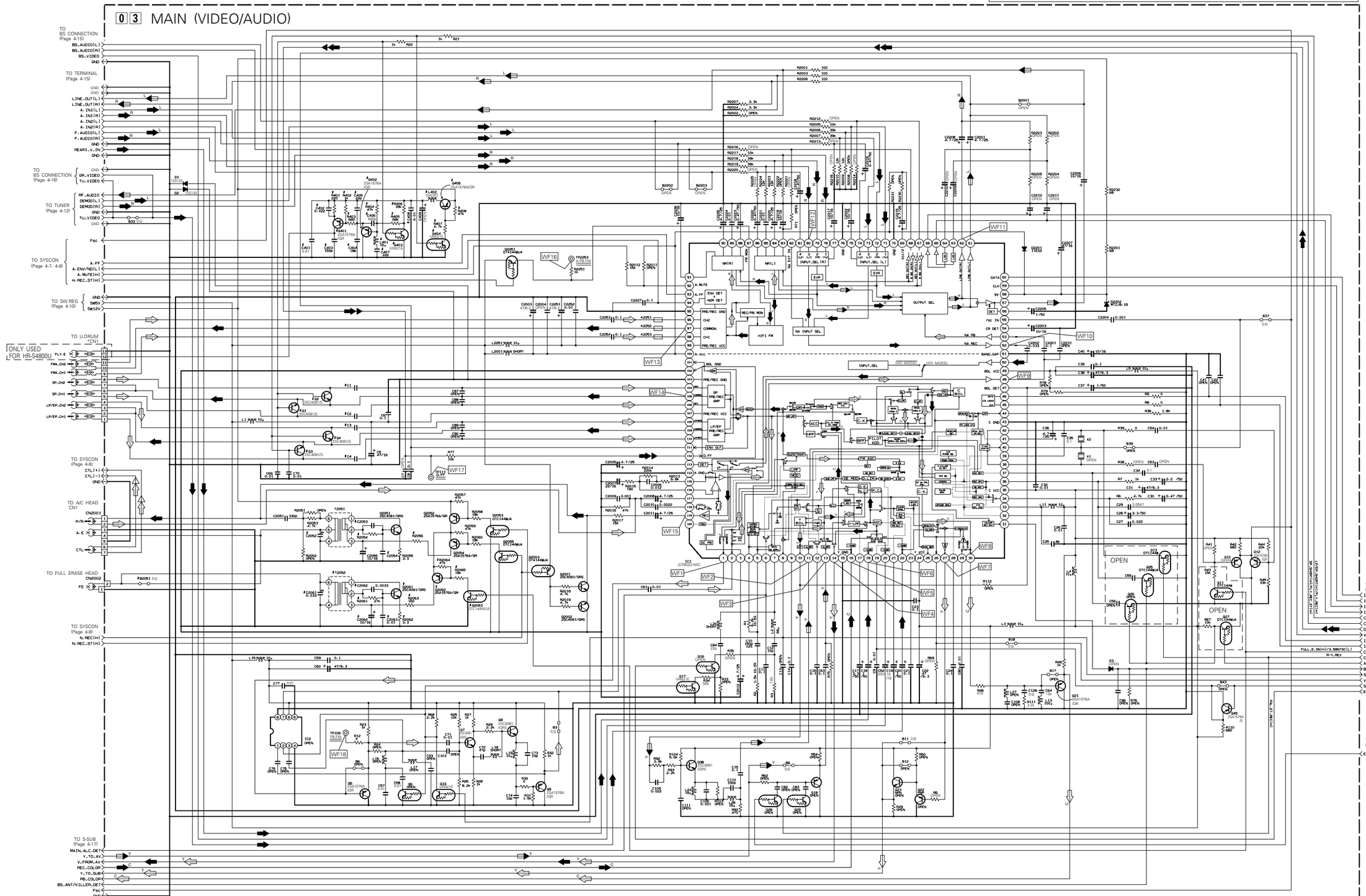
4.1 BOARD INTERCONNECTIONS



92	C.BOX
85	SHUTTLE
55	LOADING MOTOR
36	S JACK
14	DEMOD
12	A/C HEAD
08	SUB EMPHA
06	R.PAUSE
05	2D DIGITAL
03	MAIN

4.2 VIDEO/AUDIO SCHEMATIC DIAGRAM

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

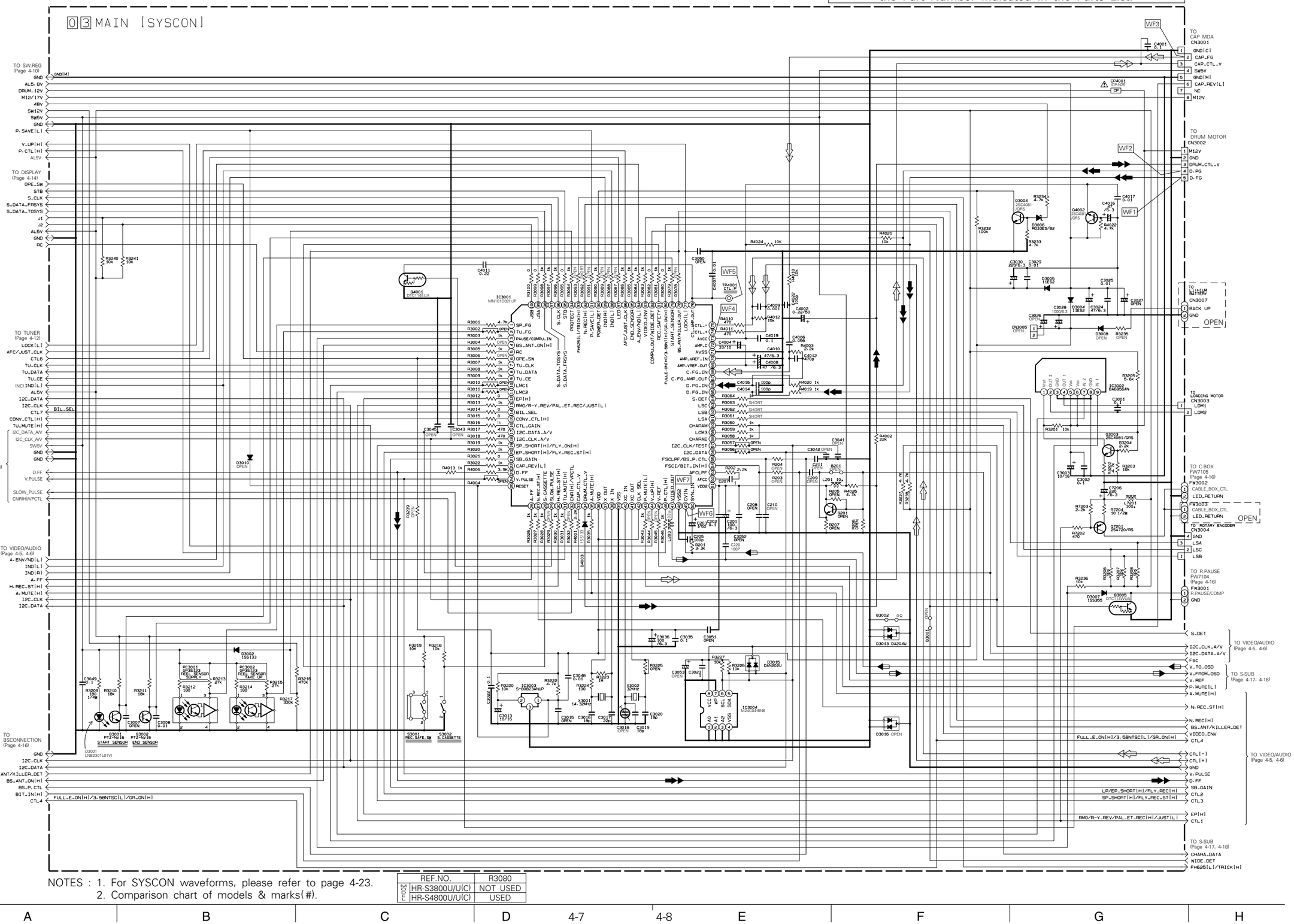


NOTES : 1. For VIDEO/AUDIO waveforms, please refer to page 4-23.
2. Comparison chart of models & marks (#).

	REF. NO.	CN1	Q1-Q4	C1-C4	Q401-Q405	C401-C408	R401-R408	L401,L402	T2052	B2051	Q2061-Q2063	C2052	C2053	C2054	C2061-C2064	R2054	R2056	R2061-R2065
#mark	HR-S3800U/UC	PIN1-11	USED	0.01 μF	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	USED	NOT USED	0.082 μF	0.0047 μF	0.022 μF	NOT USED	12kΩ	82Ω	NOT USED
	HR-S4800U/UC	PIN1-13	NOT USED	1 μF	USED	USED	USED	USED	USED	NOT USED	USED	0.033 μF	0.0033 μF	0.01 μF	USED	15kΩ	100Ω	USED

4.3 SYSTEM CONTROL SCHEMATIC DIAGRAM

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

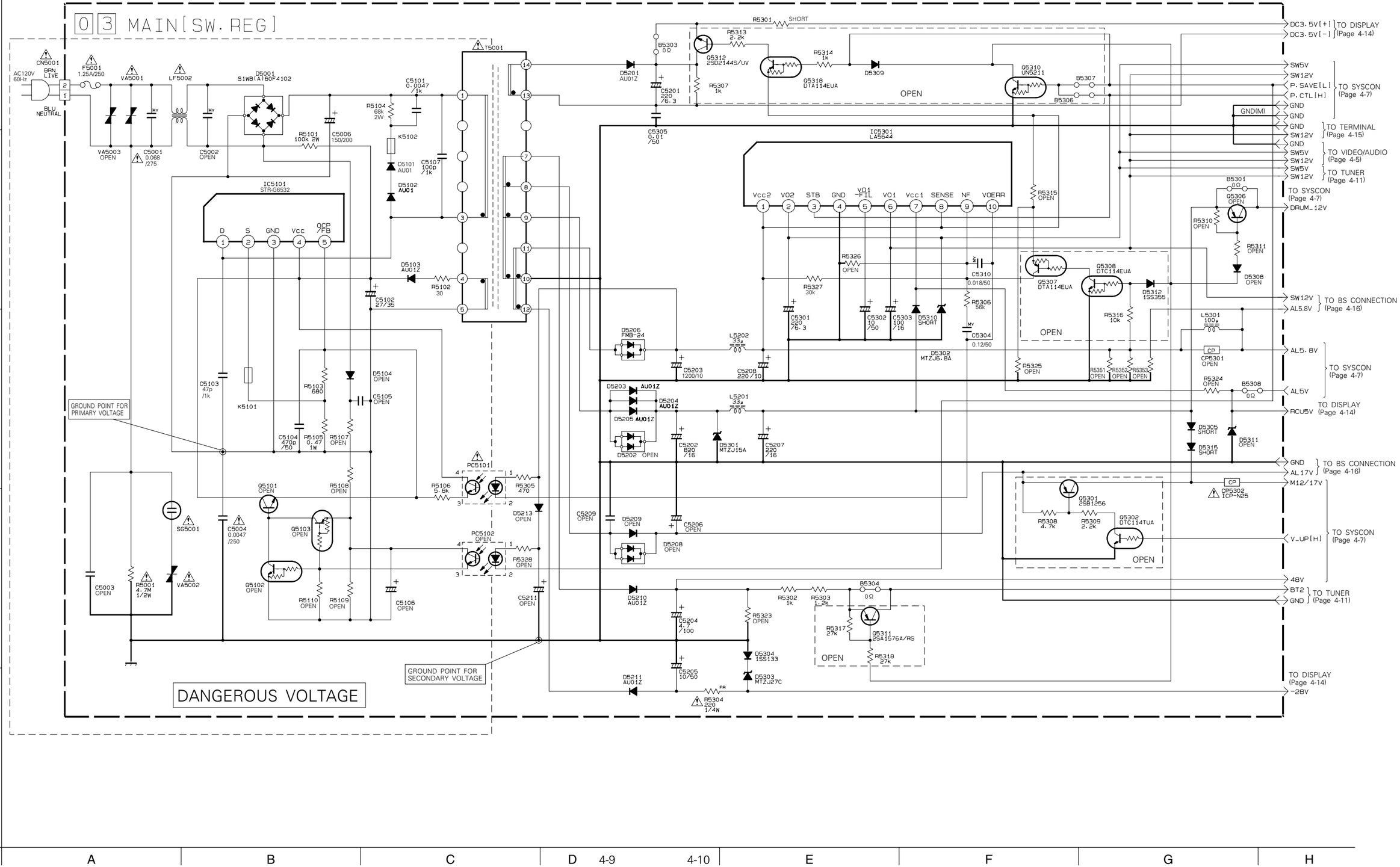


NOTES : 1. For SYSCON waveforms, please refer to page 4-23.
2. Comparison chart of models & marks(#).

	REF.NO.	R3080
MODEL	HR-S3800U/U(C)	NOT USED
	HR-S4800U/U(C)	USED

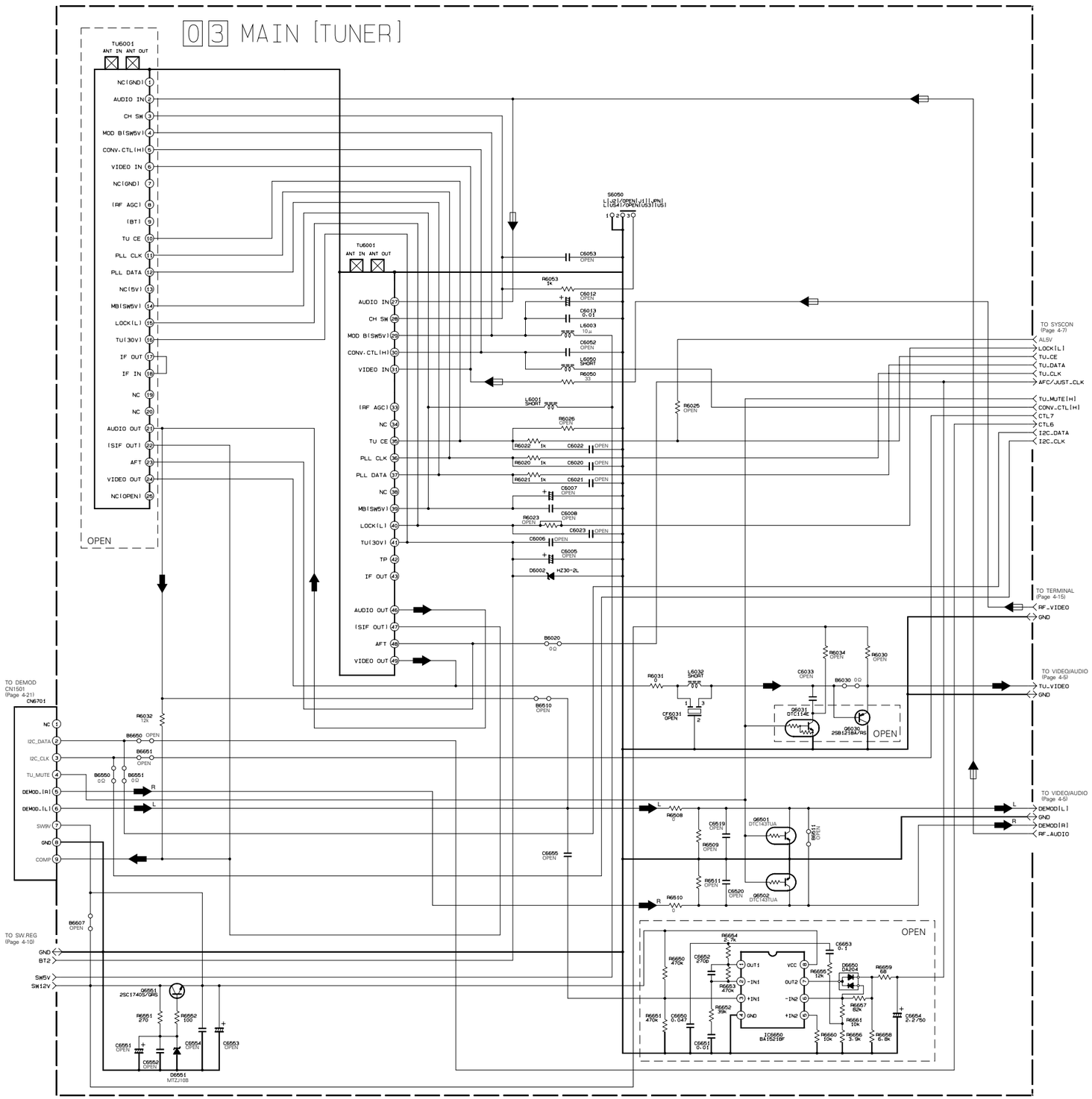
4.4 SWITCHING REGULATOR SCHEMATIC DIAGRAM

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



4.5 TUNER SCHEMATIC DIAGRAM

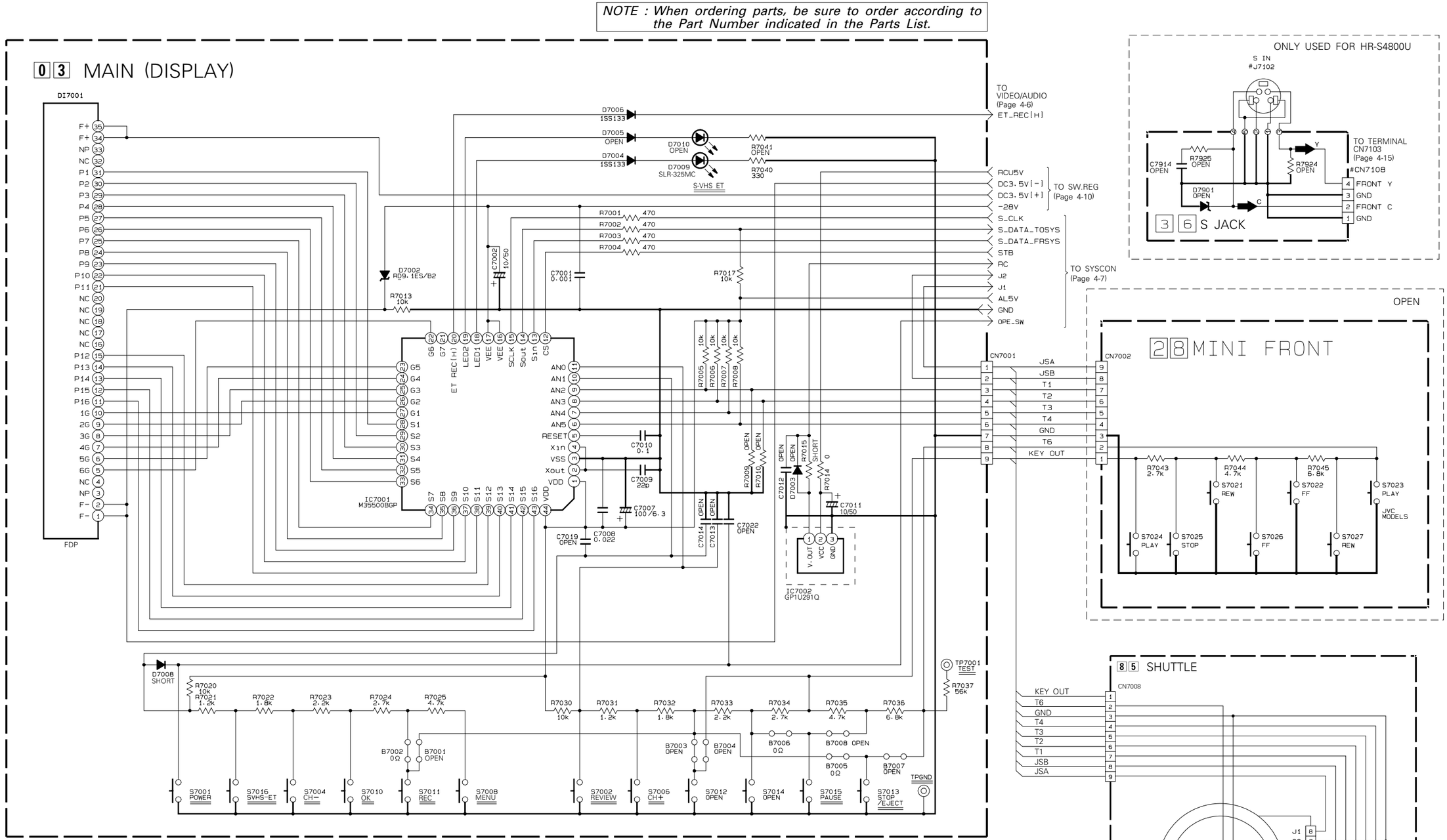
NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



A B C D 4-11 4-12 E F G H

4.6 DISPLAY, S JACK AND SHUTTLE SCHEMATIC DIAGRAMS

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

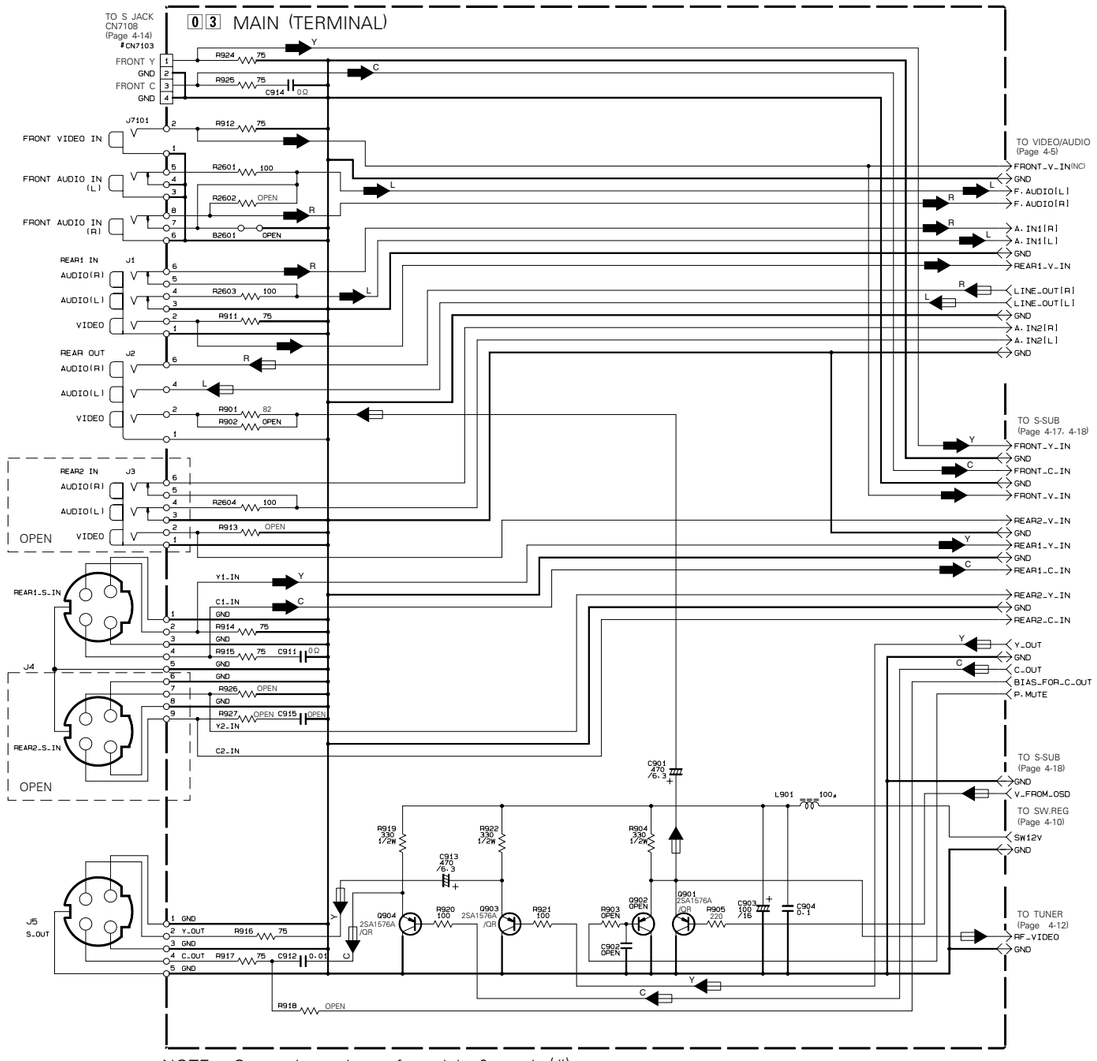


NOTE : Comparison chart of models & marks(#).

	REF.NO.	J7102	CN7108
MODEL	HR-S3800U/U(C)	NOT USED	NOT USED
	HR-S4800U/U(C)	USED	USED

4.7 TERMINAL SCHEMATIC DIAGRAM

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

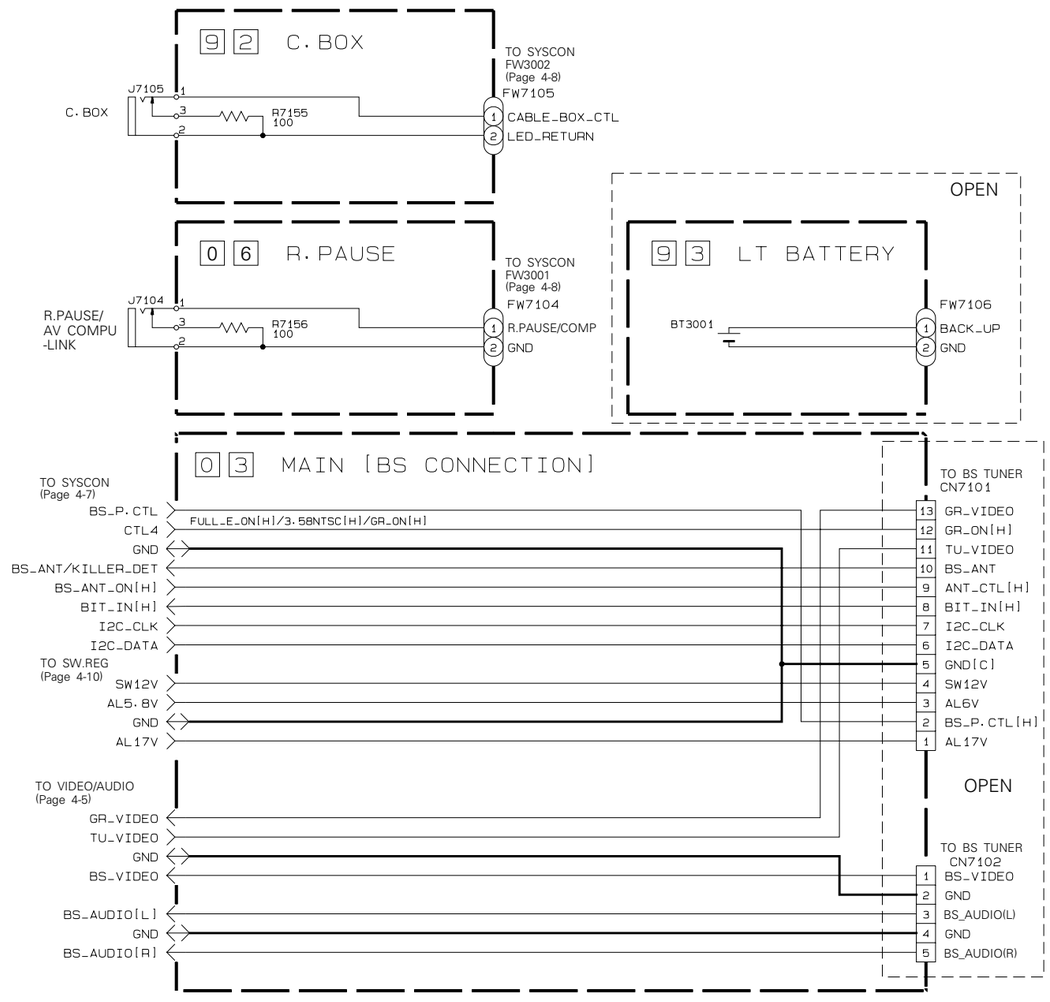


NOTE : Comparison chart of models & marks(#).

	REF.NO.	CN7103
MODEL	HR-S3800U/U(C)	NOT USED
	HR-S4800U/U(C)	USED

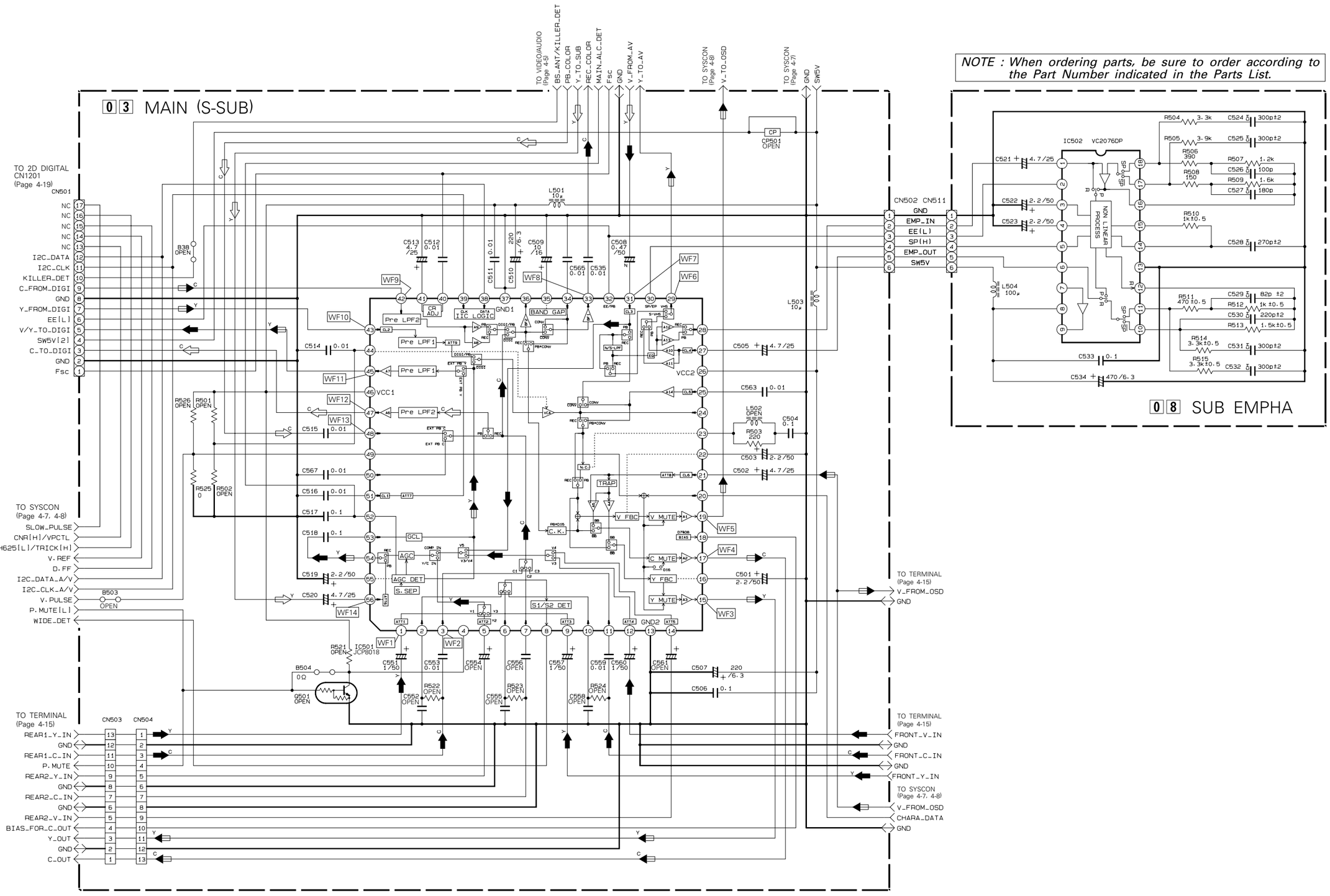
4.8 BS CONNECTION, C.BOX AND R.PAUSE SCHEMATIC DIAGRAMS

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



4.9 S-SUB AND SUB EMPHA SCHEMATIC DIAGRAMS

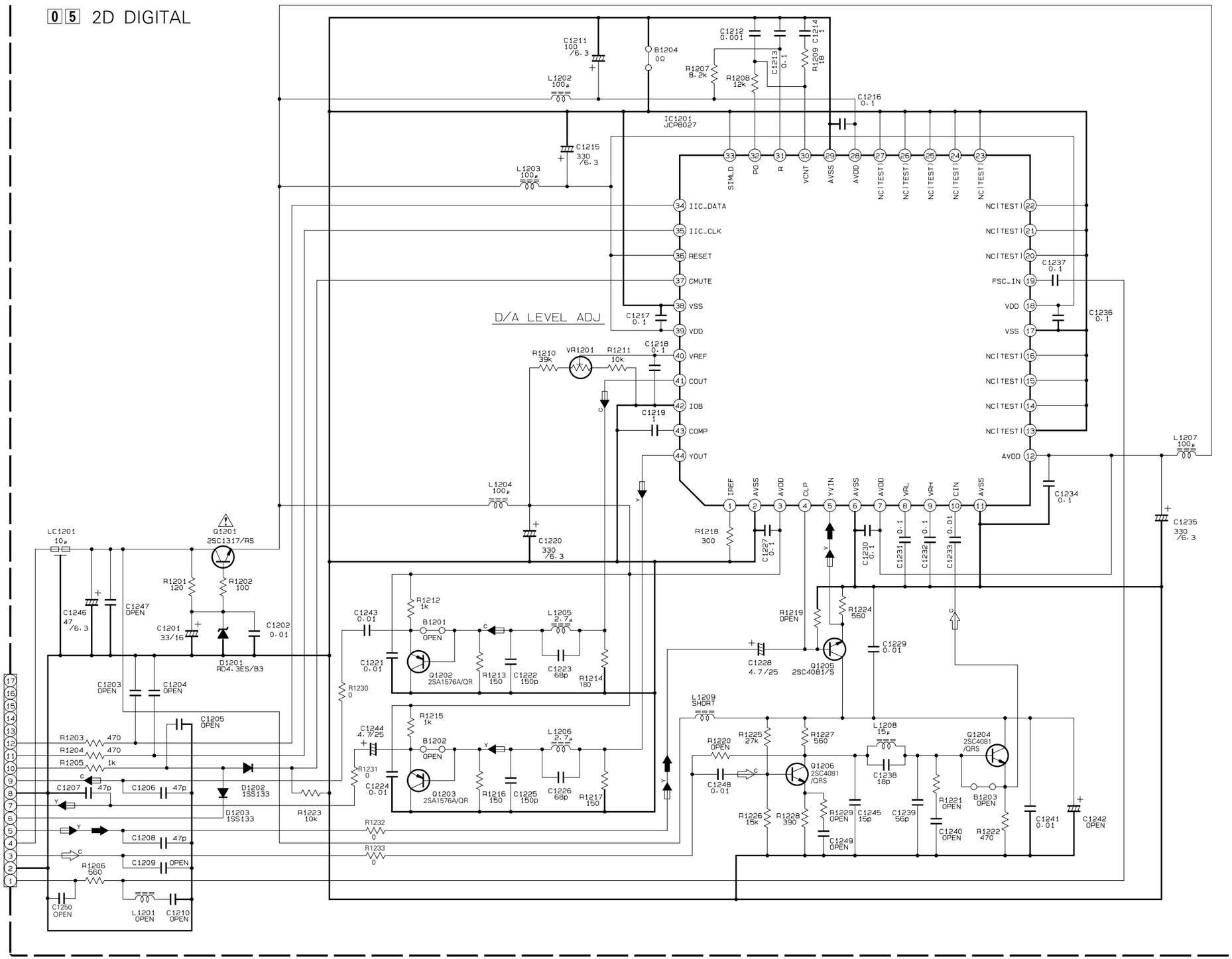
NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTE : For S-SUB waveforms, please refer to page 4-24.

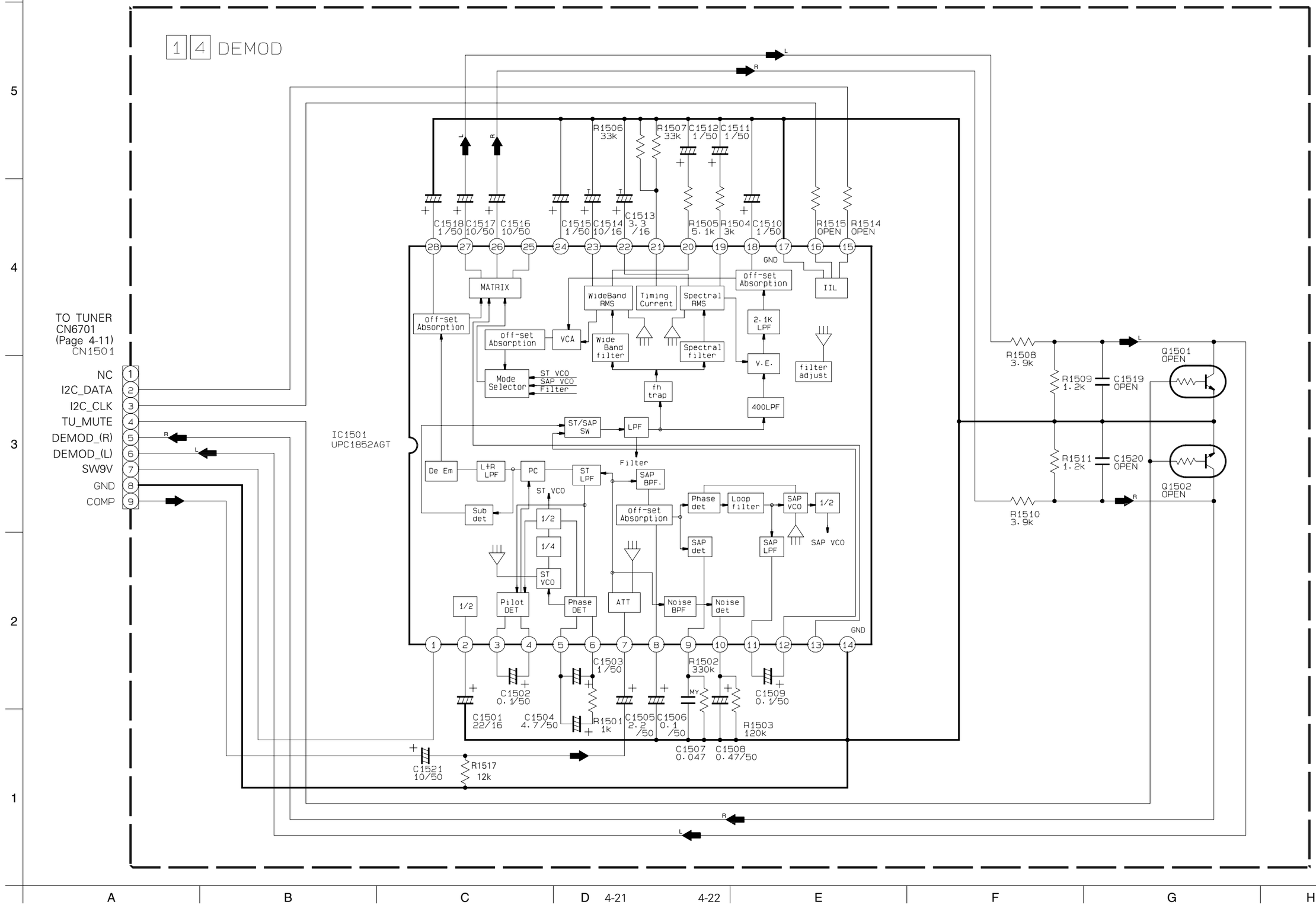
4.10 2D DIGITAL SCHEMATIC DIAGRAM

NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



4.11 DEMODULATOR SCHEMATIC DIAGRAM

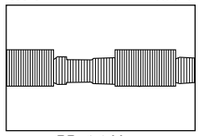
NOTE : When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



WAVEFORMS

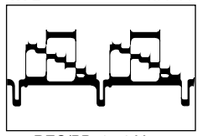
— VIDEO/AUDIO —

WF1 IC1-1



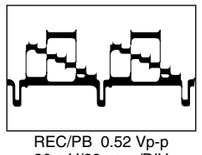
PB 1.0 Vp-p
50 mV/5 msec/DIV

WF2 IC1-11



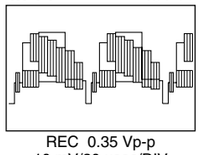
REC/PB 0.52 Vp-p
20 mV/20 µsec/DIV

WF3 IC1-13



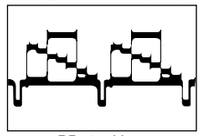
REC/PB 0.52 Vp-p
20 mV/20 µsec/DIV

WF4-1 IC1-14



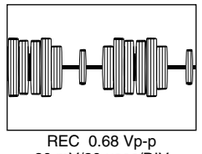
REC 0.35 Vp-p
10 mV/20 µsec/DIV

WF4-2 IC1-14



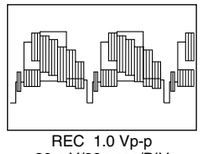
PB 0.5 Vp-p
20 mV/20 µsec/DIV

WF5 IC1-16



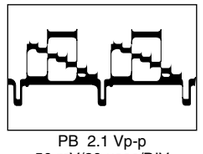
REC 0.68 Vp-p
20 mV/20 µsec/DIV

WF6 IC1-18



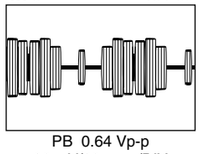
REC 1.0 Vp-p
20 mV/20 µsec/DIV

WF7 IC1-27



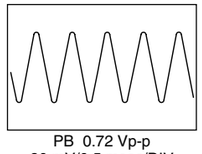
PB 2.1 Vp-p
50 mV/20 µsec/DIV

WF8 IC1-30



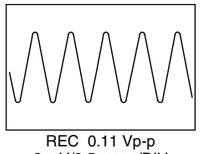
PB 0.64 Vp-p
20 mV/20 µsec/DIV

WF9 IC1-48



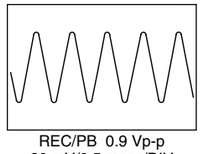
PB 0.72 Vp-p
20 mV/0.5 msec/DIV

WF10 IC1-52



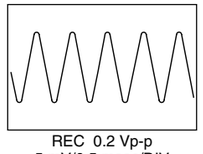
REC 0.11 Vp-p
2 mV/0.5 msec/DIV

WF11 IC1-62



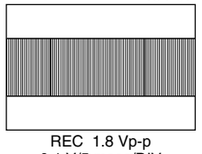
REC/PB 0.9 Vp-p
20 mV/0.5 msec/DIV

WF12 IC1-80



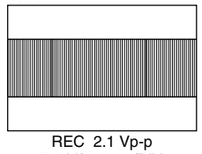
REC 0.2 Vp-p
5 mV/0.5 msec/DIV

WF13 IC1-97



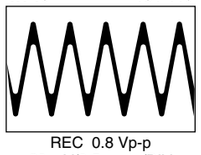
REC 1.8 Vp-p
0.1 V/5 msec/DIV

WF14 IC1-105



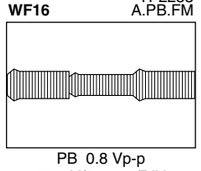
REC 2.1 Vp-p
0.1 V/1 msec/DIV

WF15 IC1-119



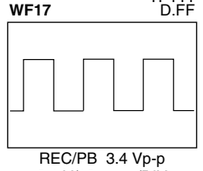
REC 0.8 Vp-p
20 mV/0.5 msec/DIV

WF16 TP2253 A.PB.FM



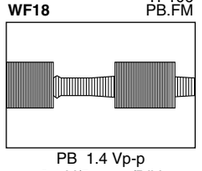
PB 0.8 Vp-p
50 mV/5 msec/DIV

WF17 TP111 D.FF



REC/PB 3.4 Vp-p
0.1 V/10 msec/DIV

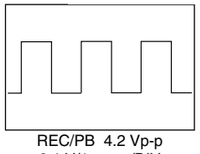
WF18 TP106 PB.FM



PB 1.4 Vp-p
0.1 V/5 msec/DIV

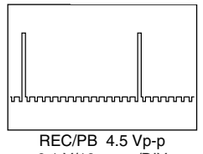
— SYSCON —

WF1 CN3002-5 D.FG



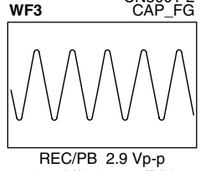
REC/PB 4.2 Vp-p
0.1 V/1 msec/DIV

WF2 CN3002-4 D.PG



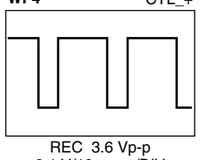
REC/PB 4.5 Vp-p
0.1 V/10 msec/DIV

WF3 CN3001-2 CAP_FG



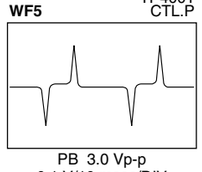
REC/PB 2.9 Vp-p
50 mV/0.5 msec/DIV

WF4 IC3001-74 CTL_+



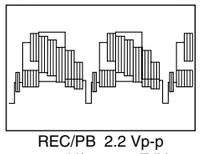
REC 3.6 Vp-p
0.1 V/10 msec/DIV

WF5 TP4001 CTL.P



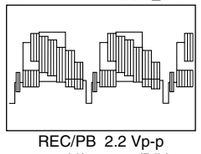
PB 3.0 Vp-p
0.1 V/10 msec/DIV

WF6 IC3001-49 CVIN



REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

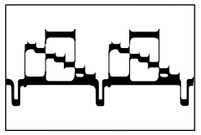
WF7 IC3001-47 VIDEO_OUT



REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

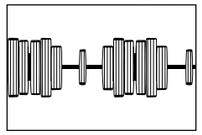
— S-SUB —

WF1 IC501-1



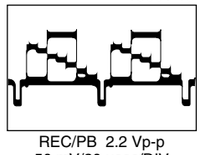
REC 1.0 Vp-p
20 mV/20 µsec/DIV

WF2 IC501-3



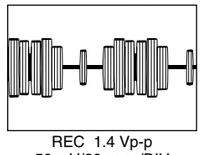
REC 0.7 Vp-p
20 mV/20 µsec/DIV

WF3 IC501-15



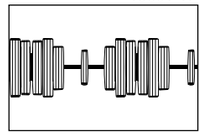
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF4-1 IC501-17



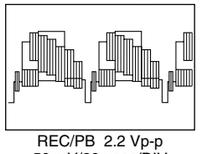
REC 1.4 Vp-p
50 mV/20 µsec/DIV

WF4-2 IC501-17



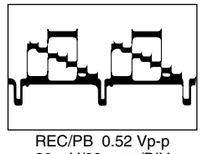
PB 1.2 Vp-p
50 mV/20 µsec/DIV

WF5 IC501-19



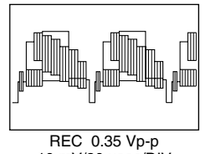
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF6 IC501-29



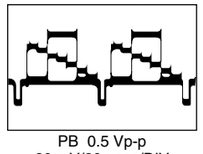
REC/PB 0.52 Vp-p
20 mV/20 µsec/DIV

WF7-1 IC501-31



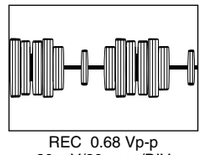
REC 0.35 Vp-p
10 mV/20 µsec/DIV

WF7-2 IC501-31



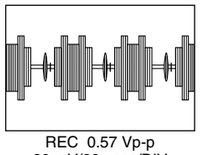
PB 0.5 Vp-p
20 mV/20 µsec/DIV

WF8 IC501-33



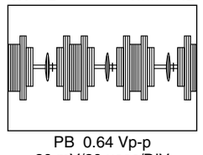
REC 0.68 Vp-p
20 mV/20 µsec/DIV

WF9-1 IC501-42



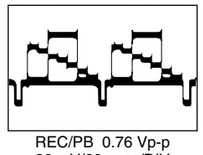
REC 0.57 Vp-p
20 mV/20 µsec/DIV

WF9-2 IC501-42



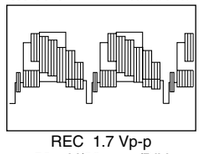
PB 0.64 Vp-p
20 mV/20 µsec/DIV

WF10 IC501-43



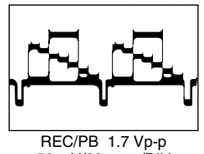
REC/PB 0.76 Vp-p
20 mV/20 µsec/DIV

WF11-1 IC501-45



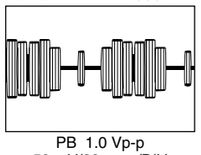
REC 1.7 Vp-p
50 mV/20 µsec/DIV

WF11-2 IC501-45



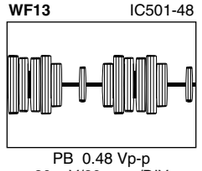
REC/PB 1.7 Vp-p
50 mV/20 µsec/DIV

WF12 IC501-47



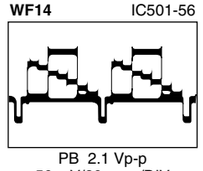
PB 1.0 Vp-p
50 mV/20 µsec/DIV

WF13 IC501-48



PB 0.48 Vp-p
20 mV/20 µsec/DIV

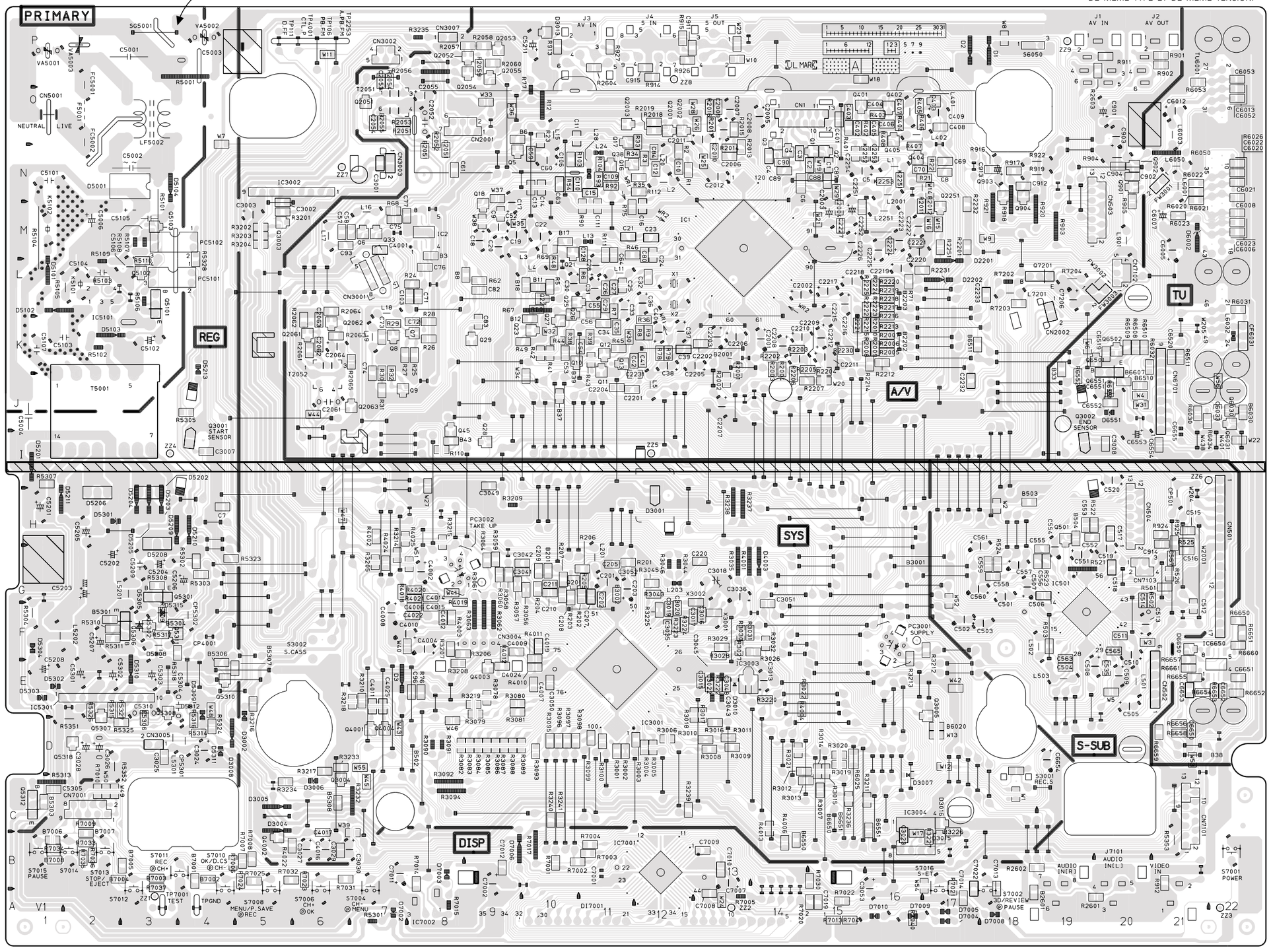
WF14 IC501-56



PB 2.1 Vp-p
50 mV/20 µsec/DIV

4.12 MAIN, A/C HEAD, C.BOX, S JACK, R.PAUSE, SHUTTLE AND LOADING MOTOR CIRCUIT BOARDS

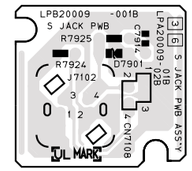
<03> MAIN
LPB10089-001B



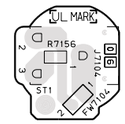
• CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD ,REPLACE ONLY WITH SAME TYPE AND RATED FUSE(S).

• ATTENTION:
POUR UNE PROTECTION PERMANENTE CONTRE LES RISQUE D'INCENDE, REMPLACER LES FUSIBLES PAR UN AUTRE DE MEME TYPE ET DE MEME TENSION.

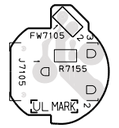
<36> S JACK [HR-S4800U/U(C)]
LPB20009-001B



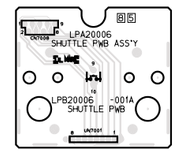
<06> R.PAUSE
LPB10089-001B



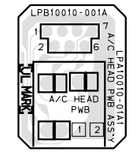
<92> C.BOX
LPB10089-001B



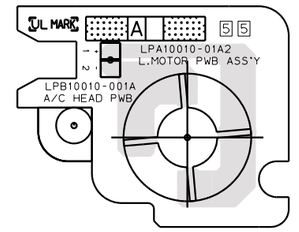
<85> SHUTTLE
LPB20006-001A



<12> A/C HEAD
LPB10010-001A



<55> LOADING MOTOR
LPB10010-001A

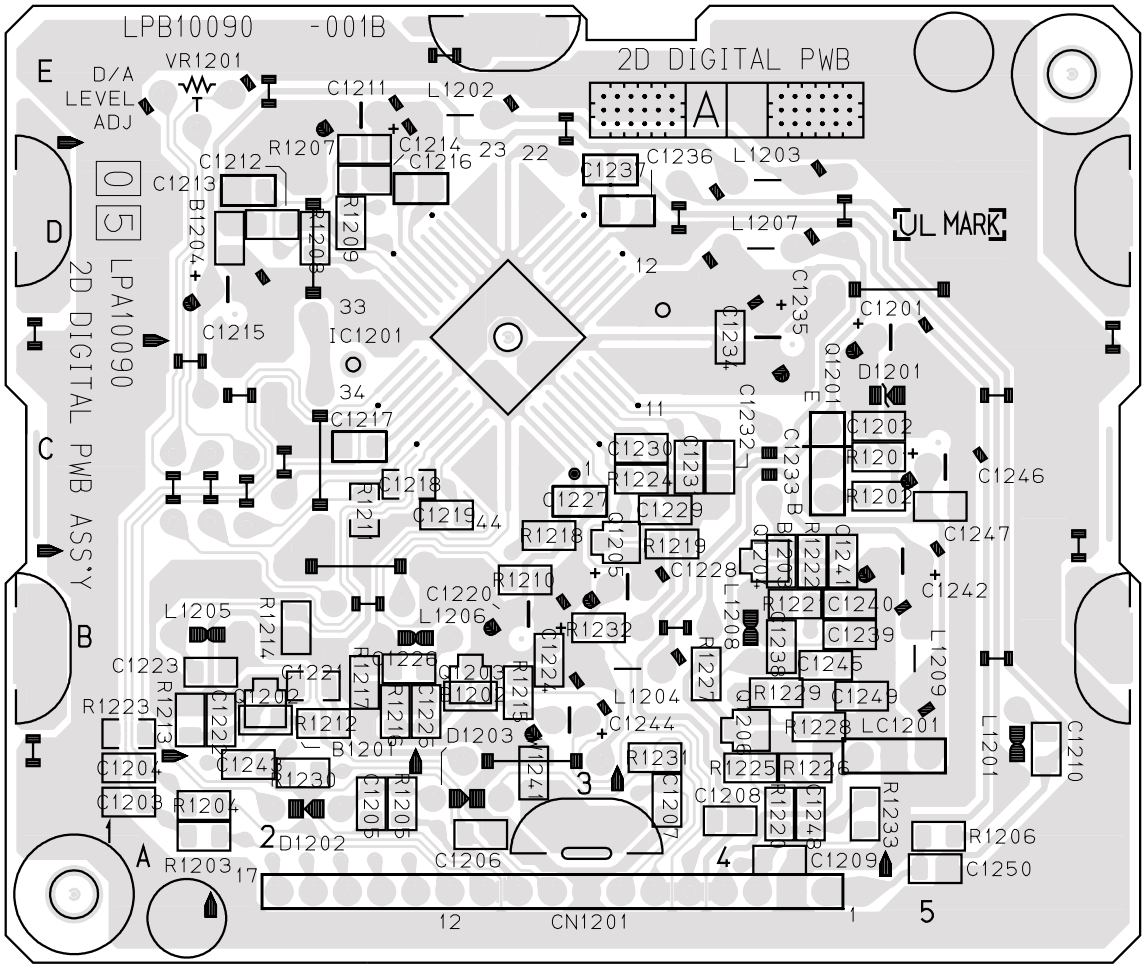


COMPONENT PARTS LOCATION GUIDE＜MAIN＞

REF.NO.	LOCATION
CAPACITOR	
C1	B C 15N
C2	B C 15N
C3	B C 14N
C4	B C 14N
C5	A D 16N
C6	B C 14N
C7	B C 4H
C8	B C 17N
C9	B C 9M
C10	B C 12N
C11	B C 10O
C12	B C 12N
C13	B C 10N
C14	B C 10N
C15	B C 11N
C16	B C 12M
C17	A D 9M
C18	A D 9M
C19	A D 9M
C20	A D 9M
C21	B C 11M
C22	A D 10M
C23	B C 12M
C24	B C 12M
C25	B C 11L
C26	B C 11L
C27	B C 11L
C28	A D 11L
C29	B C 11L
C30	A D 10L
C31	A D 11L
C32	B C 12L
C33	A D 11L
C34	B C 11K
C35	B C 11K
C36	A D 12L
C37	A D 12K
C38	A D 12K
C39	B C 12K
C40	A D 12K
C41	B C 12K
C42	B C 11K
C52	A D 9M
C53	B C 10K
C54	B C 11K
C55	B C 11L
C56	B C 11L
C57	B C 6M
C58	B C 7M
C59	B C 10N
C60	A D 10N
C61	B C 8N
C63	B C 10N
C64	B C 11M
C69	B C 17N
C70	B C 16N
C71	B C 8L
C72	B C 8K
C73	B C 7K
C74	B C 7K
C75	B C 7M
C76	B C 8L
C77	B C 8M
C80	B C 12M
C82	B C 9L
C83	B C 9K
C84	B C 12N
C87	B C 15N
C88	B C 15N
C89	B C 14N
C90	B C 14N
C93	B C 6M
C96	B C 8E
C103	B C 8L
C106	B C 10N
C109	B C 11N
C110	B C 10N
C111	B C 11M
C128	B C 11M
C201	A D 11G
C202	B C 11G
C203	A D 11G
C205	B C 11G
C207	B C 11G
C208	B C 10G
C209	B C 10G
C210	B C 10G
C211	B C 10G
C220	B C 13G
C401	B C 15O
C402	B C 15O
C403	B C 15O
C404	B C 16O
C405	B C 16O
C406	B C 16O
C407	B C 16O
C408	B C 17O
C409	A D 17O
C501	A D 18G
C502	A D 17F
C503	A D 17F
C504	B C 19E
C505	A C 20E
C506	B C 19G
C507	A D 18G
C508	A D 20E
C509	A D 20E
C510	A D 20F
C511	B C 20F
C512	B C 21F
C513	A D 20F
C514	B C 20G
C515	B C 21H
C516	B C 21G
C517	B C 20H
C518	B C 20G
C519	A D 20G
C520	A D 20I
C535	B C 20E
C551	A D 19G
C552	B C 19H
C553	B C 19H
C554	A D 19G
C555	B C 19G
C556	B C 19G
C557	A D 18G
C558	B C 18G
C559	B C 18G
C560	A D 18G
C561	A D 17G
C563	B C 19F
C565	B C 20F
C567	B C 21G
C901	A D 20O
C902	B C 20N
C903	A D 20O
C904	B C 20N
C911	B C 12P
C912	B C 18N
C913	A D 18N
C914	B C 21H
C915	B C 12P
C2001	A D 14K
C2002	A D 14L
C2003	A D 15M
C2004	B C 15M
C2005	A D 14O
C2006	B C 13N
C2007	A D 13O
C2008	A D 13O
C2009	B C 13O
C2010	B C 13N
C2011	A D 13O
C2012	A D 13N
C2051	B C 8N
C2052	A D 8O
C2053	B C 7P
C2054	B C 7O
C2055	A D 8O
C2061	A D 6J
C2062	B C 6K
C2063	B C 6K
C2064	A D 6K
C2201	B C 11J
C2202	B C 13K
C2203	A D 13K
C2204	B C 11J
C2205	A D 13K
C2206	A D 13K
C2207	A D 13J
C2208	A D 14K
C2209	A D 14K
C2210	A D 14K
C2211	A D 15K
C2212	A D 15K
C2215	A D 15K
C2216	A D 15L
C2217	A D 15L
C2218	A D 15L
C2219	A D 16L
C2220	A D 16M
C2221	B C 16M
C2222	A D 16M
C2223	A D 16M
C2224	B C 16M
C2225	A D 16M
C2226	A D 15M
C2227	B C 15M
C2231	B C 11J
C2232	B C 17J
C2233	B C 18L
C2251	A D 15N
C2252	B C 15M
C2253	B C 16N
C2254	B C 15N
C3001	B C 7N
C3002	B C 5M
C3003	A D 5M
C3007	B C 4I
C3008	B C 20I
C3013	A D 14E
C3015	B C 13E
C3016	B C 13F
C3017	B C 13F
C3018	A D 13G
C3019	B C 12F
C3020	B C 12F
C3022	B C 13E
C3023	B C 16B
C3024	A D 4D
C3025	B C 3D
C3026	A D 2D
C3027	A D 6B
C3028	A D 2D
C3029	B C 6B
C3030	A D 7B
C3035	B C 12F
C3036	A D 13G
C3041	B C 10G
C3042	B C 10G
C3043	A D 13E
C3045	A D 13E
C3048	B C 13E
C3049	B C 9I
C3050	B C 10E
C3051	B C 14F
C3052	B C 11G
C3053	A D 16B
C4001	B C 7M
C4002	A D 8G
C4004	A D 8F
C4006	B C 8F
C4007	B C 10E
C4008	A D 7F
C4009	B C 9F
C4010	A D 8F
C4011	B C 7E
C4012	B C 8F
C4014	B C 8G
C4015	B C 8F
C4016	A D 6B
C4017	B C 6B
C4019	B C 10F
C4022	B C 8F
C4024	B C 9E
C4025	B C 7E
C5001	A D 2P
C5002	A D 3N
C5003	A D 4P
C5004	A D 1J
C5006	A D 2M
C5101	A D 1N
C5102	A D 3K
C5103	A D 2K
C5104	A D 2L
C5105	A D 3M
C5106	A D 3L
C5107	A D 1K
C5201	A D 1H
C5202	A D 3G
C5203	A D 2G
C5204	A D 3G
C5205	A D 2H
C5206	A D 4G
C5207	A D 2F
C5208	A D 1E
C5209	A D 3G
C5211	A D 10P
C5301	A D 2E
C5302	A D 2E
C5303	A D 3E
C5304	A D 4E
C5305	B C 1C
C5310	A D 3E
C6005	A D 21M
C6006	B C 22M
C6007	A D 21M
C6008	B C 22M
C6012	A D 21O
C6013	B C 22O
C6020	B C 22N
C6021	B C 22N
C6022	B C 22N
C6023	B C 22M
C6033	B C 22J
C6052	B C 22O
C6053	B C 22P
C6519	B C 20K
C6520	B C 21K
C6551	A D 20J
C6552	B C 20J
C6553	A D 20I
C6554	B C 21I
C6650	B C 21D
C6651	B C 22E
C6652	B C 22E
C6653	B C 21E
C6654	A D 19D
C6655	A D 21J
C7001	A D 11B
C7002	A D 9B
C7007	A D 13B
C7008	B C 13A
C7009	B C 13B
C7010	B C 13B
C7011	A D 7B
C7012	B C 9B
C7013	B C 18B
C7014	B C 17A
C7019	B C 15A
C7022	B C 17B
C7206	A D 19L
CONNECTOR	
CN1	A D 14O
CN501	A D 22I
CN502	A D 21E
CN503	A D 19M
CN504	A D 20H
CN2001	A D 9O
CN2002	A D 19L
CN3001	A D 7L
CN3002	A D 7P
CN3003	A D 7N
CN3004	A D 9F
CN3005	A D 3D
CN3007	A D 8P
CN5001	A D 1O
CN6701	A D 21J
CN7001	A D 2C
CN7101	A D 21B
CN7102	A D 20L
CN7103	A D 20G
DIODE	
D1	A D 18P
D2	A D 17P
D3	A D 7F
D2201	A D 17L
D2202	A D 16L
D3001	A D 12H
D3002	A D 5D
D3004	A D 5C
D3005	A D 5C
D3006	A D 6C
D3007	B C 16C
D3008	A D 4E
D3010	B C 13E
D3013	B C 10P
D3015	B C 17B
D3016	B C 17C
D4003	A D 14H
D5001	B C 3N
D5101	A D 1L
D5102	A D 2L
D5103	A D 2K
D5104	A D 3N
D5201	A D 1I
D5202	A D 3H
D5203	A D 3I
D5204	A D 3I
D5205	A D 3I
D5206	A D 2H
D5208	A D 3H
D5209	A D 3H
D5210	A D 4H
D5211	A D 1H
D5213	A D 4J
D5301	A D 2H
D5302	A D 1E
D5303	A D 1E
D5304	A D 1F
D5305	A D 3F
D5308	B C 3F
D5309	A D 4D
D5310	A D 3F
D5311	A D 4D
D5312	B C 4E
D5315	A D 3F
D6002	A D 21M
D6551	A D 20J
D6650	B C 21F
D7002	A D 7A
D7003	A D 8B
D7004	A D 17A
D7005	A D 17A
D7006	A D 9B
D7008	A D 18A
D7009	A D 16A
D7010	A D 16A
IC	
IC1	B C 13M
IC2	B C 8M
IC501	B C 19F
IC3001	B C 11E
IC3002	A D 6N
IC3003	B C 13E
IC3004	A D 16C
IC5101	A D 2L
IC5301	A D 2E
IC6650	B C 22E
IC7001	B C 12B
IC7002	A D 8A
JACK	
J1	A D 20Q
J2	A D 21Q
J3	A D 11Q
J4	A D 12Q
J5	A D 13Q
J7101	A D 20A
COIL	
L1	A D 16N
L2	A D 12N
L3	A D 10M
L4	A D 10L
L5	A D 12J
L11	A D 11L
L13	A D 11M
L15	A D 10O
L16	A D 7M
L17	A D 6M
L18	A D 7L
L19	A D 7K
L20	A D 12N
L24	A D 11N
L28	A D 11N
L201	A D 11G
L203	A D 12G
L401	A D 16O
L402	A D 17O
L501	A D 20E
L502	A D 19F
L503	A D 19E
L901	A D 20M
L2001	A D 16N
L2251	A D 16M
L5201	A D 3G
L5202	A D 1F
L5301	A D 3D
L6001	A D 21N
L6003	A D 21O
L6032	A D 22K
L6050	A D 21N
L7201	A D 18L
TRANSISTOR	
Q1	B C 15N
Q2	B C 15N
Q3	B C 14O
Q4	B C 14N
Q5	B C 9N
Q6	B C 7M
Q7	B C 8K
Q8	B C 7K
Q9	B C 7J
Q10	B C 10K
Q11	B C 11K
Q12	B C 11K
Q13	B C 11K
Q16	B C 11N
Q17	B C 11O
Q18	B C 9M
Q21	B C 10M
Q22	B C 10L
Q23	B C 10K
Q25	B C 11L
Q26	B C 10L
Q27	B C 10K
Q28	B C 9I
Q29	B C 9K
Q33	B C 7M
Q38	B C 11N
Q45	B C 8J
Q201	B C 10G
Q401	B C 15O
Q402	B C 16O
Q403	B C 17O
Q404	B C 16N
Q405	B C 16O
Q501	B C 19H
Q901	B C 20N
Q902	B C 20N
Q903	B C 18N
Q904	B C 18N
Q2001	B C 12O
Q2002	B C 12O
Q2003	B C 11O
Q2051	B C 7O
Q2052	B C 9P
Q2053	B C 9P
Q2054	B C 9P
Q2055	B C 9P
Q2061	B C 6K
Q2062	B C 6K
Q2063	B C 7J
Q2251	B C 17M
Q3001	A D 4I
Q3002	A D 19I
Q3003	B C 5M
Q3004	B C 6C
Q3005	B C 17E
Q4001	B C 7D
Q4002	B C 5B
Q4003	B C 9E
Q4004	B C 7D
Q5101	A D 3L
Q5102	B C 3L
Q5103	B C 3M
Q5301	A D 3G
Q5302	B C 3F
Q5306	A D 3F
Q5307	B C 2E
Q5308	B C 3E
Q5310	B C 4E
Q5311	B C 3F
Q5312	A D 1C
Q5318	B C 2D
Q6030	B C 22J
Q6031	B C 22J
Q6501	B C 20K
Q6502	B C 20K
Q6551	A D 20K
Q7201	A D 19L
RESISTOR	
R1	B C 12N
R2	B C 12N
R3	B C 12N
R5	B C 10L
R6	B C 11L
R7	B C 11L
R8	B C 12K
R9	B C 12K
R12	A D 10P
R21	B C 17N
R22	B C 17N
R23	B C 10O
R24	B C 8L
R25	B C 8K
R26	B C 8K
R27	B C 7K
R28	B C 8K
R29	B C 7K
R30	B C 7K
R31	B C 7J
R32	B C 7K
R33	B C 12O
R34	B C 11N
R35	B C 12N
R36	B C 12K
R38	B C 10K
R39	B C 11K
R41	B C 10K
R42	B C 10K
R43	B C 11K
R44	B C 10K
R45	B C 11K
R46	B C 11M
R48	B C 10L
R49	B C 10K
R50	B C 10L
R54	B C 10N
R62	B C 9L
R67	A D 9L
R68	B C 7M
R69	B C 10M
R71	B C 16L
R75	B C 11M
R76	B C 8E
R77	A D 10P
R78	B C 12K
R79	B C 12K
R90	B C 11M
R92	B C 11N
R93	B C 11N
R103	B C 11N
R104	B C 11N
R110	B C 8I
R111	B C 11M
R112	B C 12N
R201	B C 11G
R202	B C 11G
R203	B C 10G
R204	B C 10G
R205	B C 11G
R206	B C 11G
R207	B C 10G
R401	B C 15O
R402	B C 16O
R403	B C 16O
R404	B C 16O
R405	B C 16O
R406	B C 16O
R407	B C 16N
R408	B C 16O
R501	B C 21G
R502	B C 21G
R503	B C 19F
R521	A D 20G
R522	B C 20H
R523	B C 19G
R524	B C 18G
R525	B C 21H
R526	B C 21G
R901	B C 21P
R902	B C 21P
R903	A D 19M
R904	A D 20N
R905	B C 20N
R911	B C 20P
R912	B C 21B
R913	B C 10P
R914	B C 12P
R915	B C 12P
R916	B C 18N
R917	B C 18N
R918	A D 18N
R919	A D 18N
R920	A D 18N
R921	A D 18N
R922	A D 18N
R924	B C 21H
R925	B C 21H
R926	B C 12P
R927	B C 11P
R2001	B C 13K
R2002	B C 13J
R2003	B C 14K
R2004	B C 14K
R2005	B C 16K
R2006	B C 16K
R2007	B C 16K
R2008	B C 16K
R2009	B C 16K
R2010	B C 16K
R2011	B C 16M
R2012	B C 17M
R2013	B C 13N
R2014	B C 13N
R2015	B C 13O
R2016	B C 13O
R2017	B C 13O
R2018	B C 12O
R2019	B C 12O
R2051	B C 7O
R2052	B C 8O
R2053	B C 7O
R2054	B C 7P
R2055	B C 7O
R2056	A D 8P
R2057	B C 9P
R2058	B C 9P
R2059	B C 9P
R2060	B C 9P
R2061	B C 6K
R2062	B C 6K
R2063	B C 6K
R2064	B C 6L
R2065	B C 7K
R2201	B C 17M
R2202	B C 14K
R2203	B C 14K
R2204	B C 15K
R2205	B C 15K
R2206	B C 14J
R2207	B C 14J
R2212	B C 16K
R2213	B C 16K
R2214	B C 16K
R2215	B C 16K
R2216	B C 16L
R2217	B C 16L
R2218	B C 16L
R2219	B C 16L
R2220	B C 16L
R2221	B C 15K
R2222	B C 16L
R2223	B C 16L
R2224	B C 16L
R2225	B C 16L
R2230	B C 15K
R2231	B C 17L
R2232	B C 17M
R2251	B C 17M
R2601	B C 20A
R2602	B C 19B
R2603	B C 20P
R2604	B C 11P
R3001	B C 11D
R3002	B C 11D
R3003	B C 12D
R3004	B C 12D
R3005	B C 12D
R3006	B C 12D
R3007	B C 15C
R3008	B C 13D
R3009	B C 13D
R3010	B C 13D
R3011	B C 13D
R3012	B C 14D
R3013	B C 14C
R3014	B C 15D
R3015	B C 15D
R3016	B C 13D
R3017	B C 13E
R3018	B C 13E
R3019	B C 15D
R3020	B C 15D
R3021	B C 14D
R3022	B C 14E
R3026	B C 14F
R3027	B C 13F
R3028	B C 13F
R3029	B C 13F
R3030	B C 13F
R3031	B C 13F
R3032	B C 14F
R3035	A D 13H
R3043	B C 12G
R3044	A D 12G
R3045	B C 12G
R3046	A D 12G
R3056	B C 10G
R3057	B C 9G
R3058	B C 9G
R3059	B C 9G
R3060	B C 9G
R3061	A D 9G
R3062	A D 9G
R3063	A D 9G
R3064	B C 9G
R3078	B C 9E
R3079	B C 9E
R3080	B C 9E
R3081	B C 9E
R3082	B C 8D
R3083	B C 9D
R3084	B C 9D
R3085	B C 9D
R3086	B C 9D
R3087	B C 9D
R3088	B C 9D
R3089	B C 10D
R3090	A D 8D
R3091	A D 8D
R3092	A D 8C
R3093	B C 10D
R3094	A D 8C
R3095	B C 10D
R3096	B C 10D
R3097	B C 10D
R3098	B C 10D
R3099	B C 11D
R3100	B C 11D
R3201	B C 5M
R3202	B C 5M
R3203	B C 5M
R3204	B C 5M
R3205	B C 7G
R3206	B C 8F
R3207	B C 8F
R3208	B C 8E
R3209	A D 9H
R3210	B C 7E
R3211	B C 16C
R3212	B C 17F
R3213	B C 16F
R3214	B C 7G
R3215	B C 8H
R3216	B C 5E
R3217	B C 6D
R3218	B C 7E
R3219	B C 9E
R3220	B C 14E
R3222	B C 13E
R3223	B C 12F
R3224	B C 12F
R3225	B C 12F
R3226	B C 17B
R3227	B C 17B
R3232	A D 7C
R3233	B C 6D
R3234	B C 5C
R3235	A D 8P
R3236	B C 15C
R3237	A D 13I
R3238	A D 13I
R3239	B C 12C
R3240	B C 10C
R3241	B C 10C
R4001	A D 13G
R4002	B C 7H
R4003	B C 8F
R4004	B C 14E
R4006	B C 14B
R4010	B C 10E
R4011	B C 10F
R4012	B C 9F
R4013	B C 14C
R4018	B C 7G
R4019	B C 8G
R4020	B C 8G
R4021	B C 8G
R4022	B C 6B
R4024	B C 7G
R4025	B C 7H
R5001	A D 3P
R5101	A D 3N
R5102	A D 2K
R5103	B C 2L
R5104	A D 1L
R5105	A D 2L
R5106	A D 3L
R5107	A D 3M
R5108	A D 3M
R5109	A D 2L
R5110	B C 3L
R5301	A D 7A
R5302	B C 4G
R5303	B C 4G
R5304	A D 1F
R5305	B C 4J
R5306	B C 3D
R5307	B C 1I
R5308	B C 3G
R5309	B C 3F
R5310	B C 2F
R5311	B C 2F
R5313	A D 1C
R5314	B C 4D
R5315	B C 2E
R5316	B C 4D
R5317	B C 3F
R5318	B C 4F
R5323	B C 4G
R5324	B C 4D
R5325	B C 3D
R5326	B C 2E
R5327	B C 3E
R5328	B C 4L
R5351	A D 1D
R5352	A D 2C
R5353	A D 21B
R6020	B C 21N
R6021	B C 21N
R6022	B C 21N
R6023	B C 21M
R6025	B C 15D
R6026	B C 22N
R6030	B C 21J
R6031	B C 22L
R6032	B C 20K
R6034	B C 21J
R6050	A D 21N
R6053	B C 21P
R6508	B C 20K
R6509	B C 20K
R6510	B C 20K
R6511	B C 21K
R6551	B C 20J
R6552	B C 19J
R6650	B C 22F
R6651	B C 22F
R6652	B C 22E
R6653	B C 22E
R6654	B C 21E
R6655	B C 21E
R6656	B C 21D
R6657	B C 21F
R6658	B C 21D
R6659	B C 21D
R6660	B C 22F
R6661	B C 21E
R7001	B C 10B
R7002	B C 10B
R7003	B C 11B
R7004	B C 11B
R7005	A D 14A
R7006	B C 4B
R7007	B C 5B
R7008	B C 5B
R7009	B C 2C
R7010	B C 2C
R7013	B C 15A
R7014	B C 8B
R7015	A D 8A
R7017	A D 10B
R7020	B C 15A
R7021	B C 17B
R7022	B C 15A
R7023	B C 6B
R7024	B C 5B
R7025	B C 5B
R7030	B C 15B
R7031	B C 6B
R7032	B C 5B
R7033	B C 2B
R7034	B C 1B
R7035	B C 2B
R7036	B C 2B
R7037	B C 3B
R7040	B C 16A
R7041	B C 15A
R7202	A D 18L
R7203	B C 18L
R7204	A D 19L
SWITCH	
S3001	A D 18C
S3002	A D 6F
S6050	A D 18P
S7001	A D 22B
S7002	A D 18B
S7004	A D 7B
S7006	A D 6B
S7008	A D 5B
S7010	A D 4B
S7011	A D 4B
S7012	A D 3B
S7013	A D 2B
S7014	A D 2B
S7015	A D 1B
S7016	A D 17B
TESTPOINT	
TP106	A D 6P
TP111	A D 5P
TP2253	A D 6P
TP4001	A D 6P
TP7001	A D 3A
TPGND	A D 4A
OTHER	
CF6031	A D 22K
CP501	A D 21I
CP4001	A D 3F
CP5301	A D 4D
CP5302	A D 4F
DI7001	A D 12A
F5001	A D 2N
FC5001	A D 2P
FC5002	A D 2N
FW3001	A D 21N
FW3002	A D 19L
FW3003	A D 20L
K2251	B C 16N
K2252	B C 16N
K2253	B C 16N
K5101	A D 2L
K5102	A D 1M
LF5002	A D 3O
PC3001	A D 16F
PC3002	A D 8G
PC5101	A D 4L
PC5102	A D 4M
SG5001	A D 3P
T2051	A D 7O
T2052	A D 6K
T5001	A D 1K
TU6001	A D 22P
VA5001	A D 1P
VA5002	A D 4P
VA5003	A D 2P
WR1	A D 12K
WR2	A D 14L
X1	A D 12L
X2	A D 12L
X3001	A D 13F
X3002	A D 13G

4.13 2D DIGITAL CIRCUIT BOARD

<05> 2D DIGITAL
LPB10090-001B

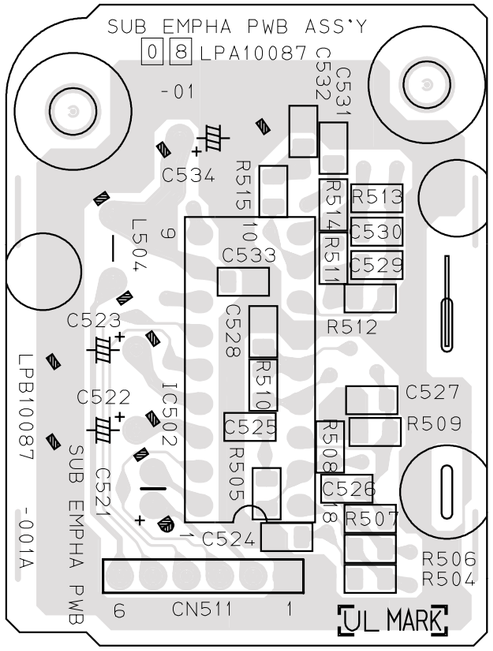


COMPONENT PARTS LOCATION GUIDE <2D DIGITAL>

REF.NO.	LOCATION		
CAPACITOR			
C1201	A	D	5D
C1202	B	C	5C
C1203	B	C	1A
C1204	B	C	1A
C1205	B	C	2A
C1206	B	C	3A
C1207	B	C	4A
C1208	B	C	4A
C1209	B	C	4A
C1210	B	C	6B
C1211	A	D	2E
C1212	B	C	2D
C1213	B	C	2D
C1214	B	C	2D
C1215	A	D	2D
C1216	B	C	3D
C1217	B	C	2C
C1218	B	C	2C
C1219	B	C	3C
C1220	A	D	3B
C1221	B	C	2B
C1222	B	C	2B
C1223	B	C	2B
C1224	B	C	3B
C1225	B	C	3B
C1226	B	C	2B
C1227	B	C	3C
C1228	A	D	3B
C1229	B	C	4C
C1230	B	C	4C
C1231	B	C	4C
C1232	B	C	4C
C1233	A	D	4C
C1234	B	C	4D
C1235	A	D	4D
C1236	B	C	4D
C1237	B	C	3D
C1238	B	C	4B
C1239	B	C	5B
C1240	B	C	5B
C1241	B	C	5B
C1242	A	D	5B
C1243	B	C	2A
C1244	A	D	3B
C1245	B	C	5B
C1246	A	D	5C
C1247	B	C	5C
C1248	B	C	4A
C1249	B	C	5B
C1250	B	C	5A
CONNECTOR			
CN1201	A	D	5A
DIODE			
D1201	A	D	5C
D1202	A	D	2A
D1203	A	D	3A
IC			
IC1201	B	C	3D
COIL			
L1201	A	D	5A
L1202	A	D	3E
L1203	A	D	4D
L1204	A	D	4B
L1205	A	D	2B
L1206	A	D	3B
L1207	A	D	4D
L1208	A	D	4B
L1209	A	D	5B
TRANSISTOR			
Q1201	A	D	5C
Q1202	B	C	2B
Q1203	B	C	3B
Q1204	B	C	4B
Q1205	B	C	3C
Q1206	B	C	4B
RESISTOR			
R1201	B	C	5C
R1202	B	C	5C
R1203	B	C	1A
R1204	B	C	1A
R1205	B	C	2A
R1206	B	C	5A
R1207	B	C	2D
R1208	B	C	2D
R1209	B	C	2D
R1210	B	C	3B
R1211	B	C	2C
R1212	B	C	2B
R1213	B	C	1B
R1214	B	C	2B
R1215	B	C	3B
R1216	B	C	2B
R1217	B	C	2B
R1218	B	C	3C
R1219	B	C	4C
R1220	B	C	4A
R1221	B	C	4B
R1222	B	C	4B
R1223	B	C	1B
R1224	B	C	4C
R1225	B	C	4A
R1226	B	C	4B
R1227	B	C	4B
R1228	B	C	4B
R1229	B	C	4B
R1230	B	C	2A
R1231	B	C	4B
R1232	B	C	3B
R1233	B	C	5A
VR1201	A	D	1E
OTHER			
LC1201	A	D	5B

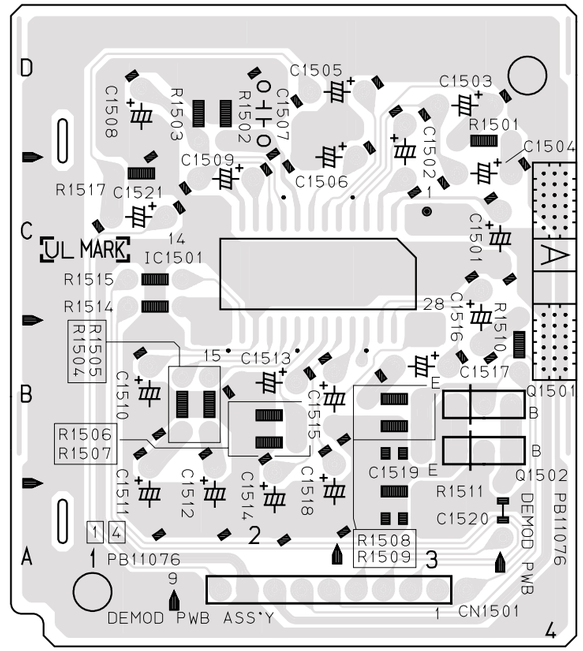
4.14 SUB EMPHA CIRCUIT BOARD

<08> SUB EMPHA
LPB10087-001A



4.15 DEMODULATOR CIRCUIT BOARD

<14> DEMOD
PB11076

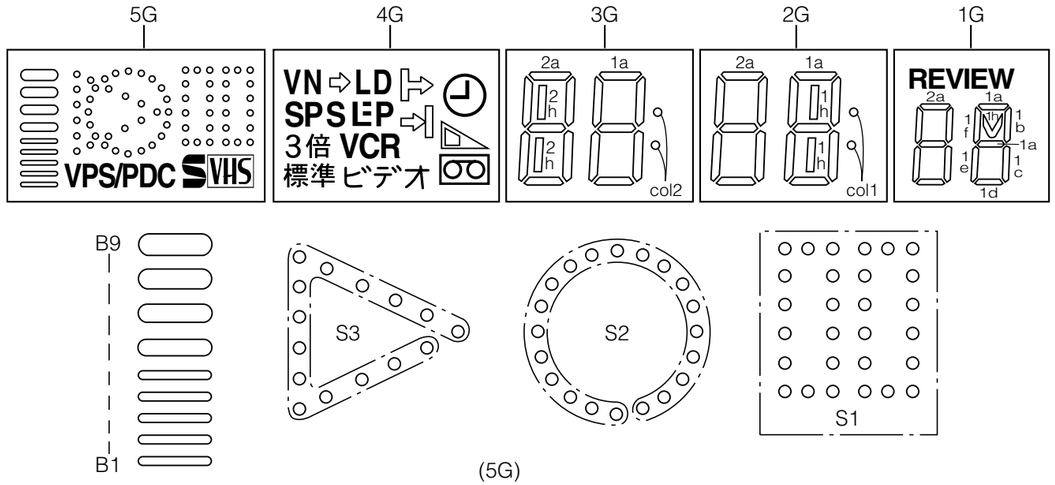


COMPONENT PARTS LOCATION GUIDE <DEMODULATOR>

REF.NO.	LOCATION		
CAPACITOR			
C1501	A	D	4C
C1502	A	D	3D
C1503	A	D	4D
C1504	A	D	4C
C1505	A	D	3D
C1506	A	D	3C
C1507	A	D	2C
C1508	A	D	1D
C1509	A	D	2C
C1510	A	D	1B
C1511	A	D	1A
C1512	A	D	2A
C1513	A	D	2B
C1514	A	D	2A
C1515	A	D	3B
C1516	A	D	3C
C1517	A	D	3B
C1518	A	D	3A
C1519	A	D	3B
C1520	A	D	3A
C1521	A	D	2C
CONNECTOR			
CN1501	A	D	3A
IC			
IC1501	B	C	2C
TRANSISTOR			
Q1501	A	D	3B
Q1502	A	D	3B
RESISTOR			
R1501	A	D	4C
R1502	A	D	2C
R1503	A	D	2C
R1504	A	D	2B
R1505	A	D	2B
R1506	A	D	2B
R1507	A	D	2B
R1508	A	D	3B
R1509	A	D	3B
R1510	A	D	4B
R1511	A	D	3A
R1514	A	D	2B
R1515	A	D	2C
R1517	A	D	2C

4.16 FDP GRID ASSIGNMENT AND ANODE CONNECTION

GRID ASSIGNMENT



(5G)

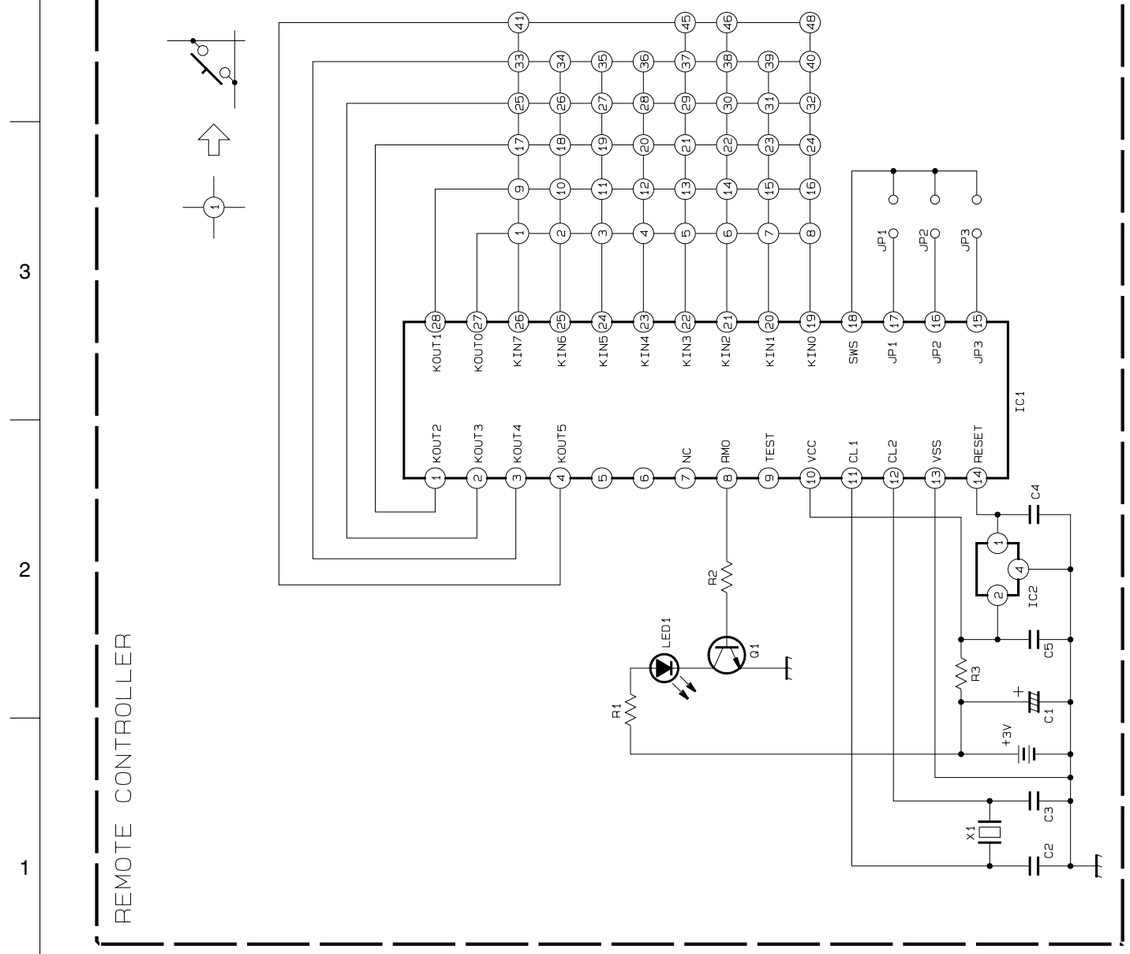
ANODE CONNECTION

	5G	4G	3G	2G	1G
P 1	S2	⇨	1a	1a	1a
P 2	S1	⇨	1b	1b	1b
P 3	S3	3倍	1f	1f	1f
P 4	VPS/PDC	標準	1g	1g	1g
P 5	S-VHS	◷	1c	1c	1c
P 6	—	◺	1e	1e	1e
P 7	—	▭	1d	1d	1d
P 8	B9	VCR	col2	1h	1h
P 9	B8	ビデオ	2a	2a	2a
P10	B7	⇨	2b	2b	2b
P11	B6	VN	2f	2f	2f
P12	B5	LD	2g	2g	2g
P13	B4	SP	2c	2c	2c
P14	B3	S (SEP)	2e	2e	2e
P15	B2	= (SEP)	2d	2d	2d
P16	B1	LP (SEP)	2h	col1	REVIEW

4.17 REMOTE CONTROL SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.

Key No.	Key Name
1	START+
2	1
3	4
4	STOP+
5	DATE+
6	CH+
7	3
8	6
9	CANSEL/C.RESET
10	2
11	7
12	0
13	8
14	TIMER
15	5
16	9
17	PROG
18	CABLE/DSS
19	TV
20	PROG CHEK
21	SP/EP
22	SKIP SEARCH
23	POWER
24	MBR SET/A/B
25	START-
26	TV/VCR
27	RE-VIEW
28	STOP-
29	DATE-
30	CH-
31	DISPLAY
32	AUDIO/MUTE
33	MENU
34	REC
35	REW
36	PLAY
37	STOP
38	FF
39	PAUSE/STILL
40	OK/ENTER
41	‹‹/TV VOL-
45	Δ/TV CH+
46	∇/TV CH-
48	››/TV VOL+
34+36	REC+PLAY
34+39	REC+PAUSE



4.18 VOLTAGE CHARTS

<VIDEO/AUDIO>

MODE PIN NO.	REC	PLAY
IC1		
1	4.4	2.3
2	2.9	2.9
3	2.5	2.5
4	1.9	1.4
5	1.9	1.5
6	2.4	2.1
7	1.7	0.8
8	0	0
9	2.6	3.0
10	2.2	2.2
11	3.0	3.0
12	2.8	2.5
13	3.0	3.0
14	2.2	2.4
15	0	0
16	2.8	2.8
17	1.5	1.5
18	2.8	2.8
19	2.3	2.3
20	2.8	2.8
21	1.5	1.9
22	2.8	2.8
23	3.0	2.8
24	5.0	5.0
25	0.4	0.4
26	0	0
27	1.3	2.3
28	2.8	2.3
29	1.9	1.9
30	2.1	2.1
31	0	0
32	2.5	2.5
33	5.0	5.0
34	2.7	2.4
35	5.0	5.0
36	2.5	2.5
37	2.3	2.3
38	0.4	0.5
39	1.3	1.2
40	-	-
41	2.6	2.6
42	-	-
43	0	0
44	2.2	2.2
45	3.5	3.5
46	3.9	3.9
47	3.0	3.0
48	2.5	2.5

MODE PIN NO.	REC	PLAY
49	5.0	5.0
50	2.5	2.5
51	2.8	2.8
52	2.3	2.3
53	2.3	2.3
54	2.4	2.4
55	2.1	2.1
56	0.4	0.4
57	2.3	2.3
58	8.7	8.7
59	4.5	4.5
60	4.5	4.5
61	4.4	4.4
62	4.3	4.3
63	2.3	2.3
64	2.3	2.3
65	1.7	1.7
66	3.3	3.3
67	4.4	4.4
68	4.4	4.4
69	2.3	2.3
70	0	0
71	0.3	0.3
72	0.2	0.2
73	0.2	0.2
74	2.3	2.3
75	2.5	2.5
76	0	0
77	2.5	2.5
78	0.3	0.3
79	0.2	0.2
80	0.2	0.2
81	2.3	2.3
82	0.7	0.7
83	0	0
84	2.3	2.3
85	2.3	2.3
86	2.2	2.2
87	1.6	1.8
88	2.3	2.3
89	2.3	2.3
90	2.3	2.3
91	0	0
92	0	0
93	0	2.4
94	0	1.9
95	0	0
96	2.4	2.4
97	2.7	2.3

MODE PIN NO.	REC	PLAY
98	2.5	2.3
99	4.9	4.9
100	5.0	5.0
101	0	0
102	0	0
103	0	0
104	2.3	2.3
105	2.2	2.3
106	2.4	2.3
107	4.9	4.9
108	0	0
109	0	0
110	0	0
111	0	4.0
112	2.5	2.5
113	0.5	0.5
114	0	0
115	2.5	2.5
116	2.5	2.5
117	2.5	2.5
118	0	0
119	2.5	2.5
120	0	0
Q1 [HR-S3800U/U(C)]		
E	-	-
C	-	-
B	-	-
Q2 [HR-S3800U/U(C)]		
E	-	-
C	-	-
B	-	-
Q3 [HR-S3800U/U(C)]		
E	-	-
C	-	-
B	-	-
Q4 [HR-S3800U/U(C)]		
E	-	-
C	-	-
B	-	-
Q5		
E	5.0	2.9
C	0	0
B	4.4	2.2
Q7		
E	1.6	1.6
C	3.3	3.3
B	2.2	2.2
Q8		
E	2.8	2.8
C	11.0	0

MODE PIN NO.	REC	PLAY
C	5.0	5.0
B	3.4	3.4
Q9		
E	3.4	3.4
C	0	0
B	2.8	2.8
Q12		
E	3.8	3.8
C	0	0
B	3.1	3.1
Q17		
E	0	0
C	0	0
B	4.8	4.8
Q21		
E	2.1	2.1
C	0	0
B	1.5	1.5
Q33		
E	0	0
C	4.8	4.8
B	0	0
Q38		
E	2.9	2.9
C	5.0	5.0
B	3.6	3.6
Q45		
E2.3	2.3	
C0	0	
B1.7	1.7	
Q401 [HR-S4800U/U(C)]		
E	9.3	0
C	0	0
B	8.8	0
Q402 [HR-S4800U/U(C)]		
E	7.3	0
C	0	0
B	6.7	0
Q403 [HR-S4800U/U(C)]		
E	0	0
C	0	0
B	4.7	0
Q404 [HR-S4800U/U(C)]		
E	0	0
C	0	11.0
B	4.7	0
Q405 [HR-S4800U/U(C)]		
E	11.0	11.0
C	11.0	0

MODE PIN NO.	REC	PLAY
B	10.3	11.0
Q2001		
E	-15.1	0
C	0	0
B	-21.5	0.7
Q2002		
E	-15.1	0
C	0	0
B	-21.0	0.7
Q2003		
E	5.0	5.0
C	-21.2	4.9
B	4.9	0
Q2051		
E	0	0
C	7.5	0.3
B	0.2	0.3
Q2052		
E	11.0	11.0
C	10.7	0.2
B	10.1	11.0
Q2053		
E	0	0
C	0	11.1
B	4.9	0
Q2054		
E	10.7	0.2
C	10.5	0.2
B	9.9	0.2
Q2055		
E	0	0
C	0	0.5
B	4.9	0
Q2061 [HR-S4800U/U(C)]		
E	0	0
C	8.6	0.2
B	-0.2	0.2
Q2062 [HR-S4800U/U(C)]		
E	10.8	0.3
C	10.7	0.2
B	10.1	0.4
Q2063 [HR-S4800U/U(C)]		
E	0	0
C	0	0.4
B	4.9	0
Q2251		
E	4.9	4.9
C	1.6	1.8
B	4.9	4.9

<SYSTEM CONTROL>

MODE PIN NO.	REC	PLAY
IC3001		
1	-	-
2	-	-
3	0.6	0.6
4	0	0
5	5.1	5.1
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	5.0	5.0
14	0	0
15	0	5.0

MODE PIN NO.	REC	PLAY
CN1		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.2	2.3
6	2.2	2.3
7	2.2	2.3
8	2.2	2.3
9	2.7	2.3
10	2.7	2.3
11	2.7	2.3
12	0	0
13	0	0
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	2.3	2.3
7	2.5	2.3
CN2002		
1	0	0
2	0	0

MODE PIN NO.	REC	PLAY
16	4.8	4.8
17	3.8	3.8
18	3.4	3.4
19	4.9	0
20	4.9	0
21	1.7	1.7
22	4.9	4.9
23	2.4	2.4
24	0	0
25	-	-
26	0	2.4
27	5.0	0
28	0	0
29	0	0
30	4.9	4.9
31	4.7	4.7
32	0	0
33	2.6	2.6
34	1.1	1.3
35	0	0
36	4.9	4.9
37	-	-
38	-	-
39	0	0
40	-	-
41	-	-
42	4.9	4.9
43	5.0	5.0
44	0	0
45	5.0	5.0
46	5.0	5.0
47	2.4	2.4
48	0	0
49	2.4	2.4
50	2.4	2.4
51	5.0	5.0
52	2.4	2.4
53	2.5	2.5
54	0	0
55	0	0
56	-	-
57	-	-
58	0	0
59	0	0
60	0	0
61	0	0
62	4.9	4.9
63	4.9	4.9
64	0	0

MODE PIN NO.	REC	PLAY
65	2.6	2.6
66	0.4	0.4
67	2.3	2.3
68	2.3	2.3
69	2.3	2.3
70	2.3	2.3
71	0	0
72	2.3	2.3
73	4.8	4.8
74	2.8	2.3
75	1.9	2.3
76	2.3	2.3
77	0	0
78	0	0
79	4.6	4.6
80	4.9	0
81	4.9	4.9
82	0	0
83	0	3.4
84	0	1.8
85	5.0	5.0
86	1.1	1.1
87	0	0
88	0	0
89	0	0
90	0	0
91	0	0
92	4.9	0
93	0	0
94	4.3	4.5
95	-	-
96	-	-
97	-	-
98	5.0	5.0
99	0	0
100	0	0
IC3002		
1	11.6	11.6
2	0.3	0.3
3	0	0
4	0.2	0.2
5	11.8	11.8
6	11.8	11.8
7	0	0
8	0	0
9	0	0
IC3003		
1	4.9	4.9
2	4.9	4.9

MODE PIN NO.	REC	PLAY
3	0	0
IC3004		
1	0	0
2	0	0
3	0	0
4	0	0
5	-	-
6	-	-
7	0	0
8	4.9	4.9
Q3001		
E	0	0
C	4.6	4.4
Q3002		
E	0	0
C	5.0	5.0
Q3003		
E	0	0
C	11.6	11.6
B	0.6	0.6
Q3004		
E	0	0
C	0	0
B	0.7	0.7
Q3005		
E	0	0
C	0	0
B	0	0
Q4001		
E	0	0
C	0	0
B	4.4	4.4
Q4002		
E	4.8	4.8
C	5.8	5.8
B	5.5	5.5
Q7201		
E	5.1	5.1
C	0	0
B	5.0	5.0
CN3001		
1	0	0
2	2.5	2.5
3	2.5	2.5
4	5.0	5.0
5	0	0
6	4.9	4.9
7	-	-
8	11.7	11.7

MODE PIN NO.	REC	PLAY
CN3002		
1	11.7	11.7
2	0	0
3	1.4	1.4
4	0.4	0.4
5	2.6	2.6
CN3003		
1	0.2	0.2
2	0.3	0.3
CN3004		
1	4.9	4.9
2	4.9	4.9
3	0	0
4	0	0
FW3001		
1	0	0
2	0	0
FW3002		
10	0	
20	0	

<SW.REG>

MODE PIN NO.	REC	PLAY
IC5101		
1	61.5	58.6
2	-	-
3	0	0
4	-	-
5	-	-
IC5301		
1	5.7	5.7
2	5.1	5.1
3	4.8	4.8
4	0	0
5	11.8	11.8
6	11.1	11.1
7	11.8	11.8
8	5.7	5.7
9	1.3	1.3
10	4.4	4.4

<TUNER>

MODE PIN NO.	REC	PLAY
Q6501		
E	0	0
C	0	0
B	3.5	3.5
Q6502		
E	0	0
C	0	0
B	3.5	3.5
Q6551		
E	8.9	8.9
C	10.9	10.9
B	9.6	9.6
CN6701		
1	0	0
2	-	-
3	-	-
4	0	0
5	0	0
6	0	0
7	9.0	9.0
8	0	0
9	2.0	2.0

MODE PIN NO.	REC	PLAY
20	-27.5	-27.5
21	-23.4	-23.4
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-
41	-	-
42	-	-
43	-	-
44	4.9	4.9
IC7002		
1	5.1	5.1
2	5.1	5.1
3	0	0
CN7001		
1	0	0
2	0	0
3	5.0	5.0
4	5.0	5.0
5	5.0	5.0
6	5.0	5.0
7	0	0
8	5.0	5.0
9	5.0	5.0

<DISPLAY>

MODE PIN NO.	REC	PLAY
IC7001		
1	4.9	4.9
2	2.1	2.1
3	0	0
4	2.1	2.1
5	4.9	4.9
6	4.9	4.9
7	4.9	4.9
8	4.9	4.9
9	4.9	4.9
10	4.9	4.9
11	4.9	4.9
12	-	-
13	4.1	-
14	4.9	4.9
15	4.1	-
16	-27.8	-27.8
17	-27.8	-27.8
18	-27.5	-27.5
19	-27.5	-27.5

<TERMINAL>

MODE PIN NO.	REC	PLAY
Q901		
E	3.1	3.1
C	0	0
B	2.4	2.4
Q903		
E	3.0	3.0
C	0	0
B	2.3	2.3
Q904		
E	2.8	2.8
C	0	0
B	2.1	2.1
CN7103 [HR-S4800U/U(C)]		
1	0	0
2	0	0
3	0	0
4	0	0

<S-SUB>

MODE PIN NO.	REC	PLAY
IC501		
1	2.8	2.8
2	0.3	0.3
3	2.1	2.1
4	4.9	4.9
5	2.8	2.8
6	0.2	0.2
7	2.1	2.1
8	2.7	2.7
9	2.8	2.8
10	2.6	2.6
11	2.1	2.1
12	2.8	2.8
13	0	0
14	2.8	2.8
15	2.3	2.3
16	2.7	2.7
17	2.1	2.1
18	0	0
19	2.4	2.4
20	0	0
21	3.6	3.6
22	2.7	2.7
23	2.9	2.1
24	3.0	3.0

MODE PIN NO.	REC	PLAY
25	2.9	2.9
26	5.0	5.0
27	3.0	3.0
28	2.5	2.3
29	2.6	2.3
30	4.9	4.9
31	2.9	2.9
32	0.1	4.9
33	2.9	2.9
34	2.9	2.9
35	2.9	2.9
36	2.9	2.9
37	0	0
38	4.0	4.0
39	3.6	3.6
40	2.8	2.8
41	2.7	2.7
42	2.9	2.9
43	3.3	3.3
44	2.0	2.0
45	2.9	2.9
46	5.0	5.0
47	0.7	3.1
48	2.9	2.9
49	0	0
50	2.9	2.9
51	2.9	2.9
52	2.4	2.1
53	3.2	3.2
54	2.4	2.4
55	1.9	1.1
56	2.6	3.4
CN501		
1	3.7	3.7
2	0	0
3	0.7	3.1
4	5.0	5.0
5	2.8	2.8
6	0.1	4.9
7	3.3	3.3
8	0	0
9	2.8	2.8
10	-0.5	-0.5
11	3.5	3.5
12	3.9	3.9
13	0	0
14	0	0
15	2.5	2.5
16	0	0

MODE PIN NO.	REC	PLAY
17	0	0
CN502		
1	0	0
2	2.5	2.3
3	0.1	4.9
4	4.9	4.9
5	2.2	2.2
6	5.0	5.0
CN503		
1	2.1	2.1
2	0	0
3	2.3	2.3
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	4.9	4.9
11	0	0
12	0	0
13	0	0
CN504		
1	0	0
2	0	0
3	0	0
4	4.9	4.9
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	2.3	2.3
12	0	0
13	2.1	2.1

<2D DIGITAL>

MODE PIN NO.	REC	PLAY
IC1201	-	-
Q1201	-	-
Q1202	-	-
Q1203	-	-
Q1204	-	-
Q1205	-	-
Q1206	-	-
CN1201		
1	3.7	3.7
2	0	0
3	0.7	3.1
4	5.0	5.0
5	2.8	2.8
6	0.1	4.9
7	3.3	3.3
8	0	0
9	2.8	2.8
10	-0.5	-0.5
11	3.5	3.5
12	3.9	3.9
13	0	0
14	0	0
15	2.5	2.5
16	0	0
17	0	0

<SUB EMPHA>

MODE PIN NO.	REC	PLAY
IC502		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	2.9	2.9
11	2.9	2.9
12	2.9	2.9
13	0	0
14	2.8	2.8
15	2.8	2.8
16	1.9	1.9

MODE PIN NO.	REC	PLAY
17	1.9	1.9
18	1.9	1.9
CN511		
1	0	0
2	2.5	2.3
3	0.1	4.9
4	4.9	4.9
5	2.2	2.2
6	5.0	5.0

<DEMODULATOR>

MODE PIN NO.	REC	PLAY
IC1501	-	-
CN1501		
1	0	0
2	-	-
3	-	-
4	0	0
5	0	0
6	0	0
7	9.0	9.0
8	0	0
9	2.0	2.0

<S JACK>
[HR-S4800U/U(C)]

MODE PIN NO.	REC	PLAY
CN7108		
1	0	0
2	0	0
3	0	0
4	0	0

<SHUTTLE>

MODE PIN NO.	REC	PLAY
CN7008		
1	5.0	5.0
2	5.0	5.0
3	0	0
4	5.0	5.0
5	5.0	5.0
6	5.0	5.0
7	5.0	5.0
8	0	0
9	0	0

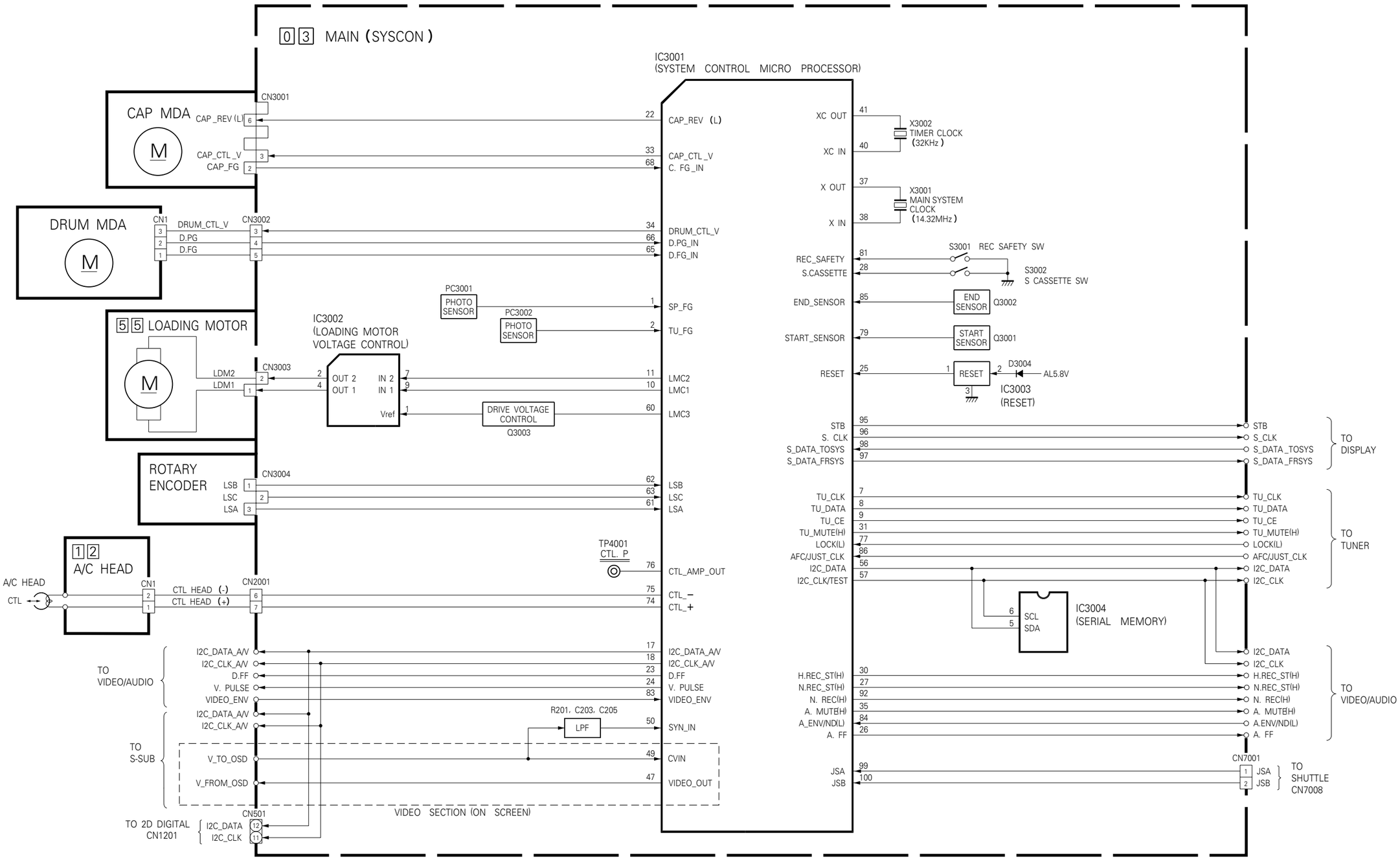
<R.PAUSE>

MODE PIN NO.	REC	PLAY
FW7104		
1	0	0
2	0	0

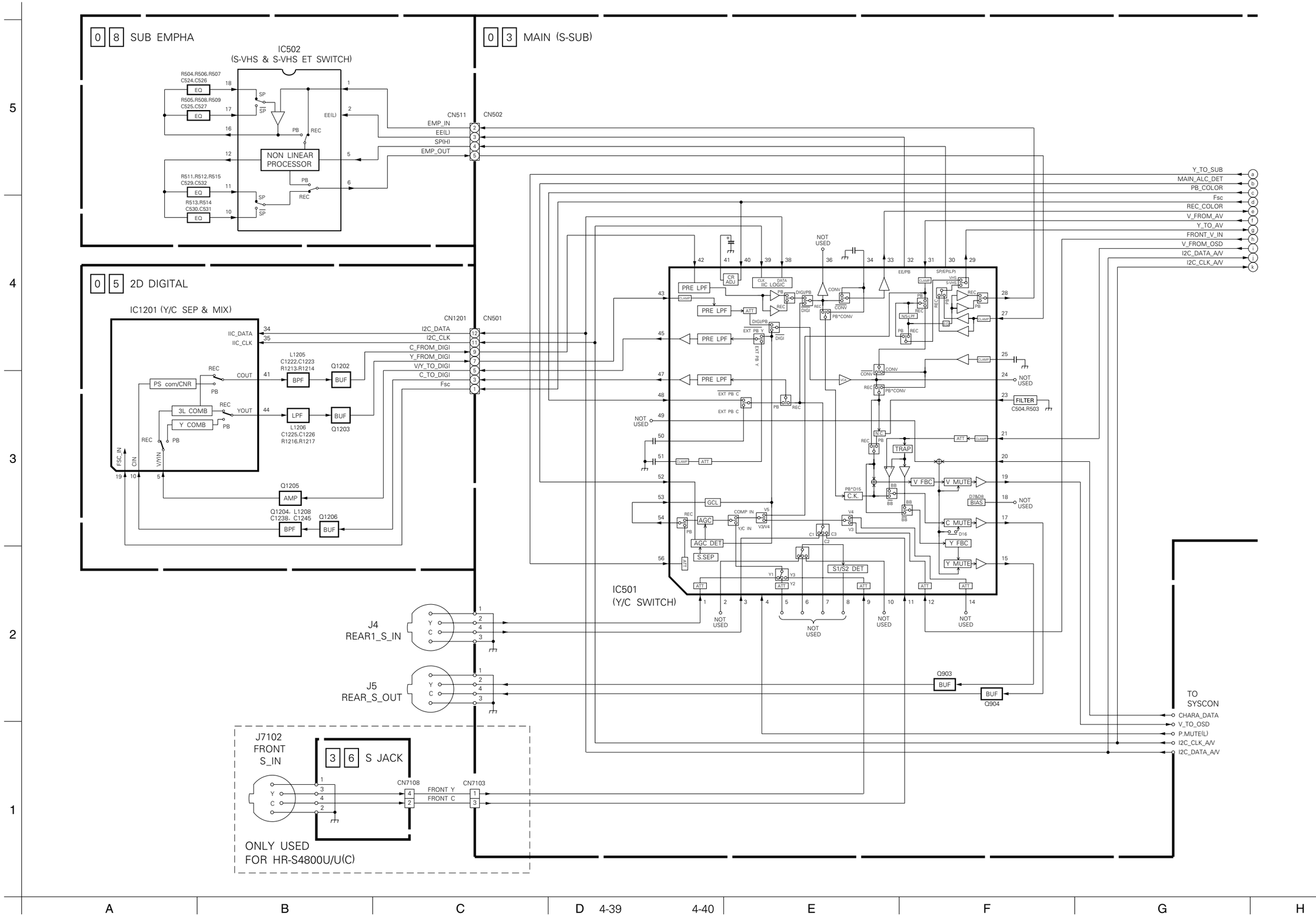
<C.BOX>

MODE PIN NO.	REC	PLAY
FW7105		
1	0	0
2	0	0

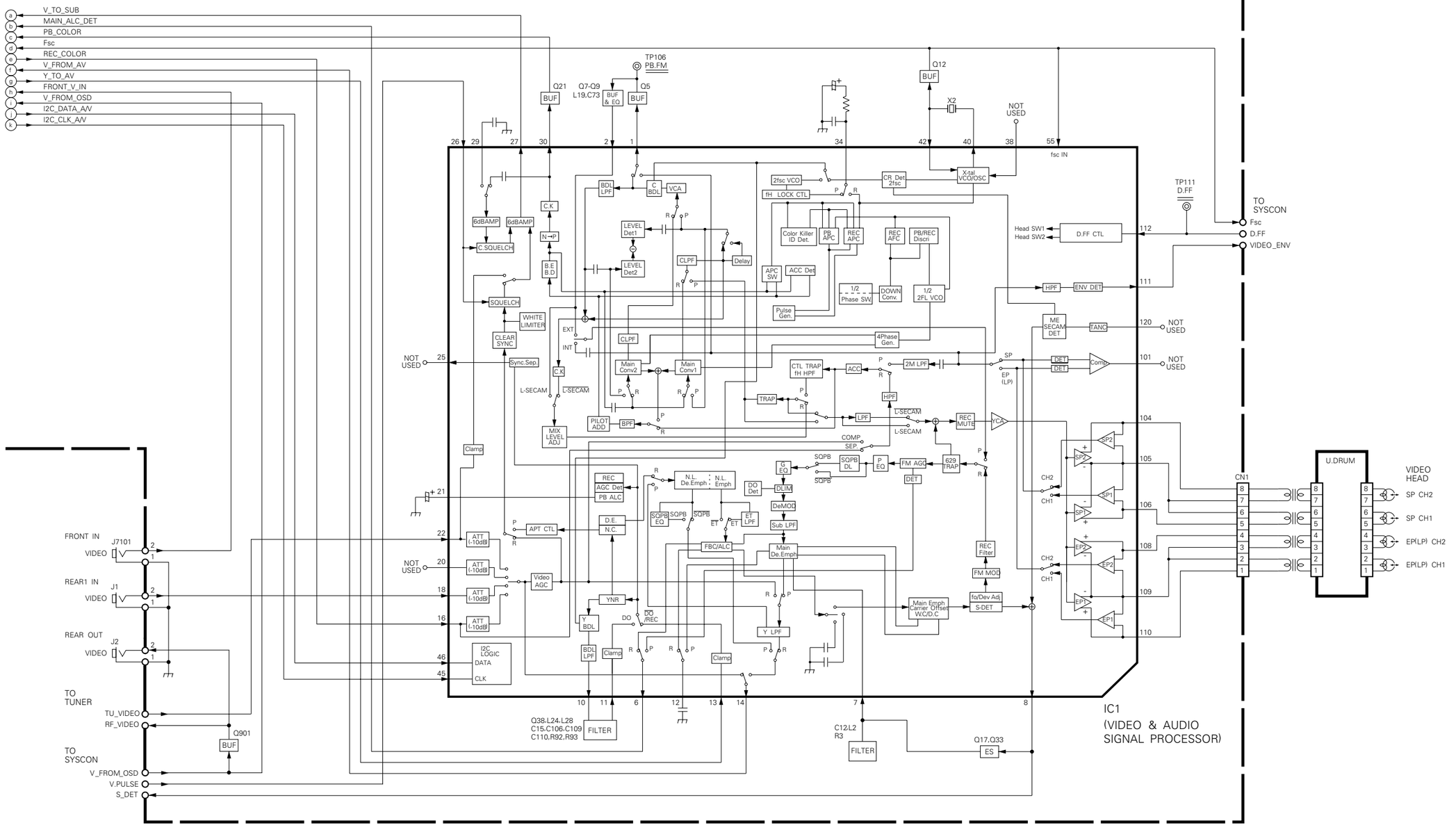
4.19 SYSTEM CONTROL BLOCK DIAGRAM



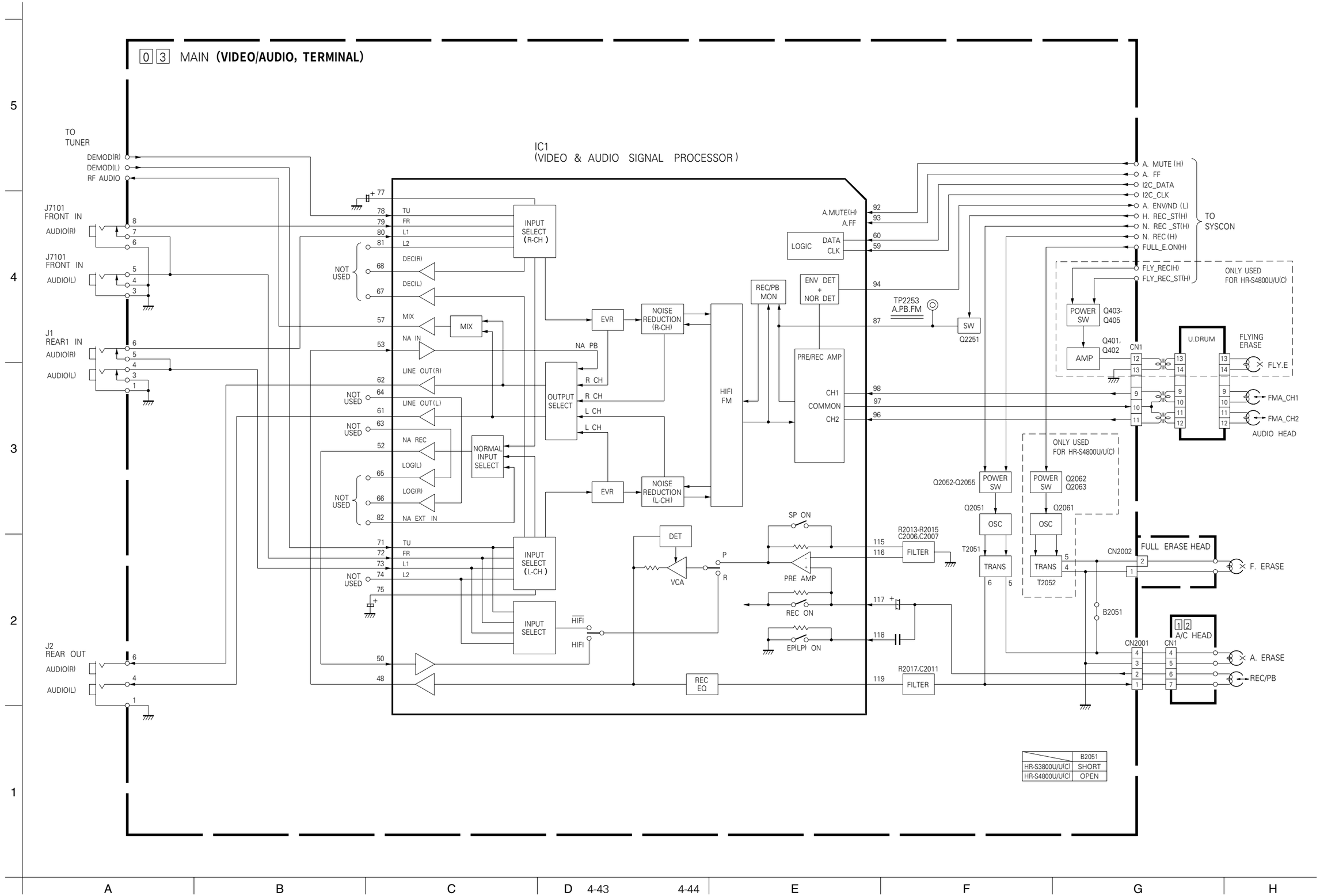
4.20 VIDEO BLOCK DIAGRAM



0 3 MAIN (VIDEO,TERMINAL)



4.21 AUDIO BLOCK DIAGRAM



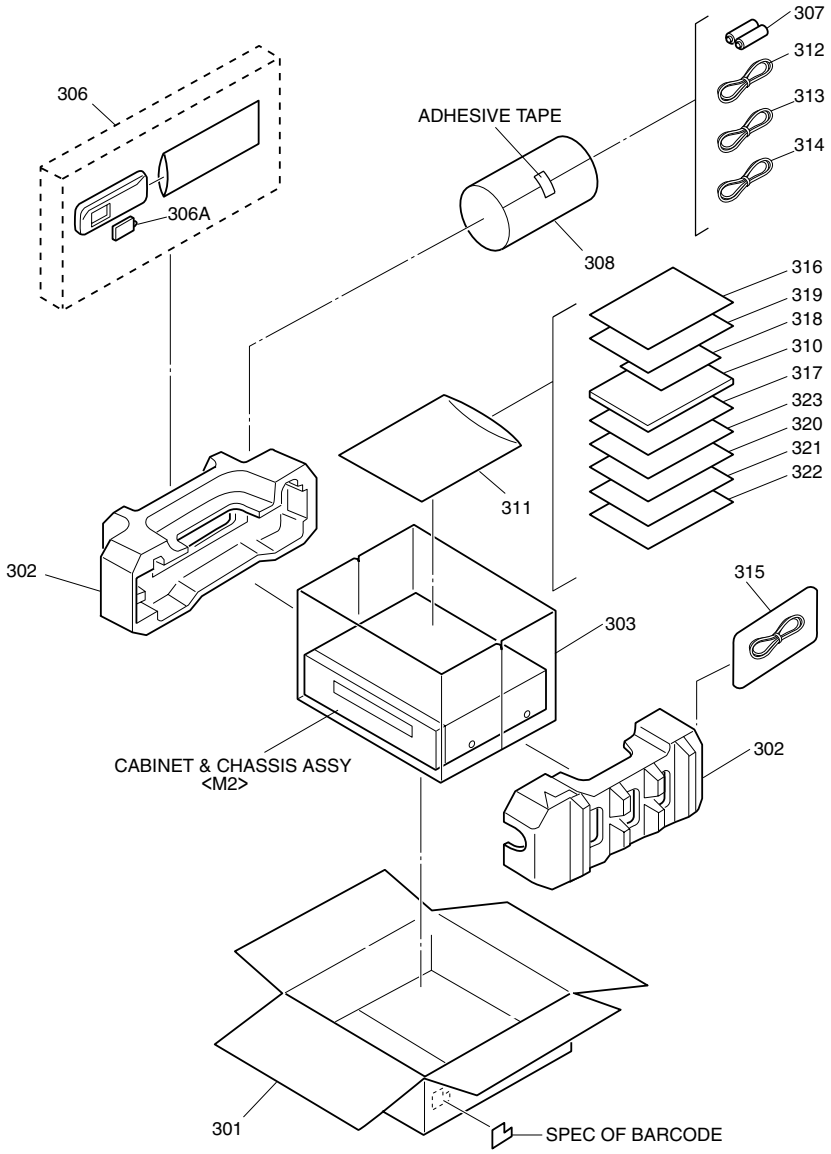
SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.



****

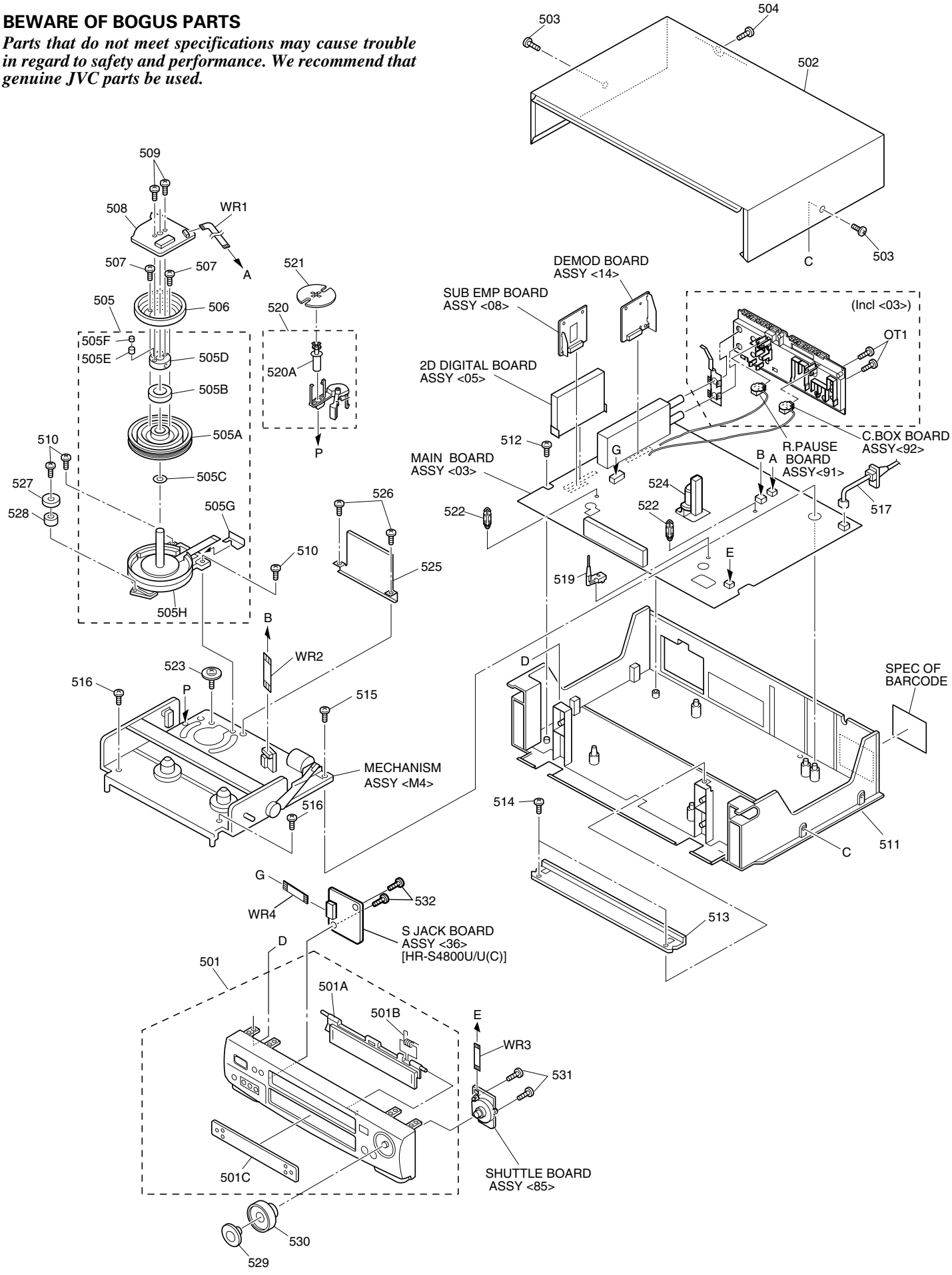
PACKING AND ACCESSORY ASSEMBLY <M1>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		301	LP30658-013A	PACKING CASE,S4800U/U(C)
			LP30658-015A	PACKING CASE,S3800U/U(C)
		302	LP30718-001A	CUSHION ASSY
		303	PQM30021-93	POLY BAG
		306	LP20303-015A	REMOTE CONTROLLER
		306A	LP40225-002A	COVER(BATTERY)
		307	–	BATTERY,X2("AA"TYPE)
		308	QPC02202230P	POLY BAG
	⚠	310	LPT0348-001A	INST.BOOK(EN)
	⚠		LPT0348-003A	INST.BOOK(FR),S3800U(C)/S4800U(C)
		311	QPC02503530P	POLY BAG
		312	PEAC0294-04	RF CABLE
		313	PEAC0359-120	A/V CABLE
		314	QAM0004-002	S CABLE
		315	QAL0095-005	CONTROLLER,S4800U/U(C)
		316	BT-52004-1	WARRANTY CARD,S3800U(C)/S4800U(C)
		317	LPT0348-002A	Q.S.SHEET,S3800U/S4800U
		318	LP40437-001A	LABEL(S-VHS ET)
		319	BT-51020-2	REGIST.CARD,S3800U/S4800U
		320	BT-20071B	SER.NET CARD,S3800U(C)/S4800U(C)
		321	LP30666-001B	SHEET(COUPON),S3800U/U(C)
		322	LP40645-001A	SHEET(CPN.F),S3800U/U(C)
		323	PU36560	CONECTION SHEET,S3800U(C)/S4800U(C)

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



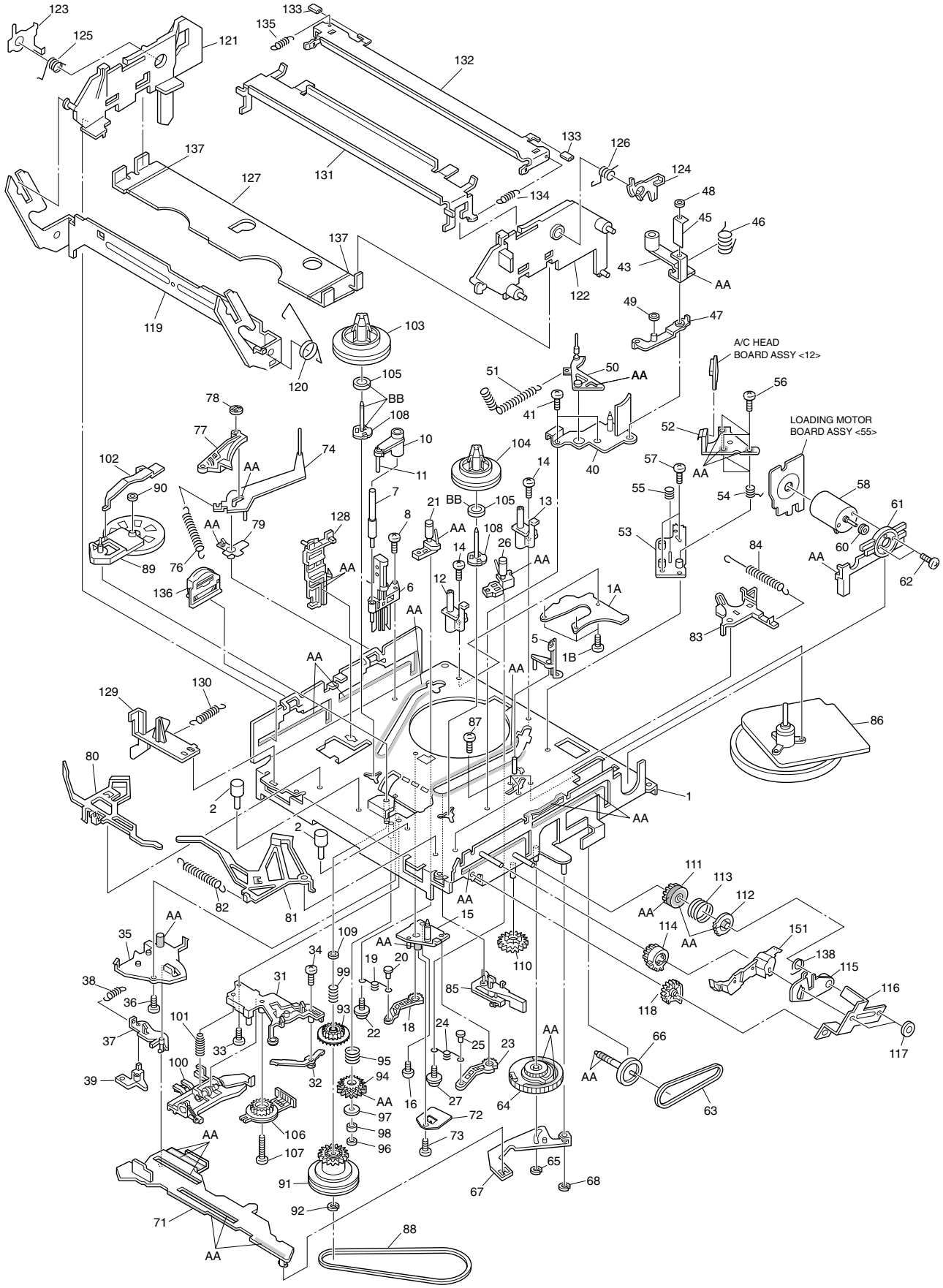
#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
**********				

CABINET AND CHASSIS ASSEMBLY <M2>

	⚠	501	LP10289-018B	FRONT PANEL ASSY,S3800U/U(C)
	⚠		LP10289-019B	FRONT PANEL ASSY,S4800U/U(C)
		501A	LP20868-005A	CASSETTE DOOR
		501B	PQ46448	TORSION SPRING
		501C	LP20869-022A	DISPLAY WINDOW,S3800U/U(C)
			LP20869-023A	DISPLAY WINDOW,S4800U/U(C)
	⚠	502	LP10013-021D	TOP COVER
		503	QYTDSF3010M	SCREW,X2 TOP COVER(SIDE)
		504	QYTDSF3010M	SCREW,TOP COVER(REAR)
		505	LP20617-006A	DRUM SUB ASSY,S3800U/U(C)
			LP20617-008A	DRUM SUB ASSY,S4800U/U(C)
		505A	LP20030-015A	UPPER DRUM ASSY,S4800U/U(C)
			LP20616-003A	UPPER DRUM ASSY,S3800U/U(C)
		505B	PDM4439	CAP
		505C	PDM4444-19-2	WASHER
		505D	LP40572-001A	COLLAR ASSY
		505E	LP40323-001A	CONTACT
		505F	LP30004-014A	COMPRESSION SPRING
		505G	LP40174-001B	FPC PLATE
		505H	LP20615-002A	LOWER DRUM ASSY,S3800U/U(C)
			LP20615-007A	LOWER DRUM ASSY,S4800U/U(C)
		506	PDZ0179-1-4	ROTOR ASSY
		507	QYSPSP3006Z	SCREW,X2
	⚠	508	QAR0119-001	STATOR ASSY
		509	QYSPSPH2606Z	SCREW,X2
		510	QYTDST2610Z	SCREW,X3 DRUM
	⚠	511	LP10108-012B	BOTTOM CHASSIS
		512	QYTDSF3010Z	SCREW,MAIN
		513	LP30312-001B	BRACKET(CHASSIS)
		514	QYTDSF3010Z	SCREW,X2
		515	QYTDSF4012Z	SCREW,MECHA
		516	QYTDSF3010Z	SCREW,X2 MECHA
	⚠	517	QMPD190-170-K	POWER CORD
		519	LP40407-001A	KNOB ASSY
		520	LP40370-001E	ROLLER ARM ASSY
		520A	PDM4311A-1	ROLLER ASSY
		521	PQ44230	INERTIA PLATE
		522	LP40226-001A	PC SUPPORT,X2
		523	PQ40413	SPECIAL SCREW,MECHA
		524	LP40253-001B	STOPPER
		525	LP30356-002C	DRUM SHIELD
		526	QYTDST2606Z	SCREW,X2
		527	QYWWS267505Z	WASHER,DRUM
		528	LP30017-021A	SPACER,DRUM
		529	LP30653-001A	KNOB(PLAY)
		530	LP30652-001A	KNOB(SHUTTLE)
		531	QYTDSF2608Z	SCREW,X2 SHUTTLE
		532	QYTDSF2608Z	SCREW,X2 S JACK S4800U/U(C)
		WR1	QUQ212-0518CG	FFC WIRE,DRUM CN3002
		WR2	WJT0005-002A	E-CARD WIRE,A/C HEAD CN2001
		WR3	QUQ112-0914CG	FFC WIRE,FRONT CN7001
		WR4	WJT0026-001A	E-CARD WIRE S JACK C7103 S4800U/U(C)

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION

5.3 MECHANISM ASSEMBLY <M4>



Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

MECHANISM ASSEMBLY <M4>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
1			LP20228-008H	MAIN DECK ASSY
1A			LP40275-003A	PLATE(SUPPLY)
1B			QYTDST2606Z	SCREW,X4 PLATE(SUPPLY)
5			LP30492-002B	GUIDE POLE GUARD
6			NAH0001-001	FULL ERASE HEAD
7			LP40098-001B	GUIDE POLE(SUPPLY)
8			QYTDST2608Z	SCREW,FE HEAD
10			LP30459-002A	TENSION STU-D BASE
11			LP40367-002A	TENSION STU-D
12			LP30409-002C	UV CATCHER 2(SUPPLY)
13			LP30409-002C	UV CATCHER 2(TAKE UP)
14			QYTPST2606Z	SCREW,X2 UV CATCHER
15			LP30223-003C	LOADING ARM GEA SHAFT
16			QYTDST2606Z	SCREW
18			LP30224-001A	LOADING ARM GEAR(SPPLY)
19			LP40099-001A	TORSION ARM
20			LP40100-001A	PIN
21			LP40101-002C	POLE BASE ASSY(SUPPLY)
22			QYSPSTG2606Z	SCREW
23			LP40103-002B	LOADING ARM GEAR(TAKE UP)
24			LP40099-001A	TORSION ARM
25			LP40100-001A	PIN
26			LP40104-003A	POLE BASE ASSY(TAKE UP)
27			QYSPSTG2606Z	SCREW
31			LP20233-004B	ROTARY ENCODER GUIDE
32			LP30499-001C	BRAKE LEVER
33			QYTPST2606Z	SCREW
34			QYTPST2608Z	SCREW
35			LP30226-004C	CONTROL PLATE GUIDE
36			QYTPST2605Z	SCREW
37			LP30249-003B	TAKE UP LEVER
38			LP30003-006A	TENSION SPRING
39			LP40119-002A	T.UP HEAD
40			LP20234-004B	LID GUIDE
41			QYTDST2606Z	SCREW,X2
43			LP40105-001B	PINCH ROLLER ARM ASSY
45			LP40478-001A	PINCH ROLLER SHEET2
46			LP40148-002A	TORSION SPRING
47			LP40149-001C	PRESS LEVER ASSY
48			LP30016-002A	SLIT WASHER
50			LP40106-002E	GUIDE ARM ASSY
51			LP40134-001C	TENSION SPRING
52			QAH0010-004	AC HEAD
53			LP30228-001A	HEAD BASE
54			LP30004-013A	COMPRESSION SPRING,X3
55			LP40236-001A	COMPRESSION SPRING
56			LP40213-002B	SPECIAL SCREW,X3
57			QYTDST2608Z	SCREW,X2
58			QAR0023-001	LOADING MOTOR
60			PQ43546-1-2	MOTOR PULLEY
61			LP30230-001B	MOTOR GUIDE
62			QYTPSP3003Z	SCREW,X2
63			LP30005-003A	BELT,LOADING MOTOR
64			LP20791-002C	CONTROL CAM
65			PQM30017-24	SLIT WASHER
66			LP40120-001A	WORM GEAR
67			LP40107-002A	LINK LEVER ASSY
68			PQM30017-24	SLIT WASHER
71			LP10201-003C	CONTROL PLATE
72			LP40379-001B	CONTROL BRACKET(1)
73			QYTDSF2608M	SCREW
74			LP40108-002A	TENSION ARM ASSY
76			LP30003-010A	TENSION SPRING
77			LP40109-003D	TENSION BRAKE ASSY
78			PQ46302-1-3	ADJUST PIN
79			LP30232-002A	T.ARM BEARING
80			LP40532-008A	MAIN BRAKE ASSY (SUPPLY)
81			LP40111-011A	MAIN BRAKE ASSY (TAKE-UP)
82			LP30003-026A	TENSION SPRING
83			LP40112-001F	SUB BRAKE ASSY(TAKE UP)
84			LP40357-002A	TENSION SPRING
85			LP40461-001A	CAPSTAN BRAKE ASSY
86			QAR0087-004	CAPSTAN MOTOR
87			QYTDSF2606M	SCREW,X3
88			LP30005-007A	BELT,CAPSTAN MOTOR
89			LP40114-008A	IDLER ARM ASSY
90			LP30016-001A	SLIT WASHER
91			LP40593-001A	CLUTCH UNIT 3
92			PQM30017-47	SLIT WASHER
93			LP40446-002B	CLUTCH GEAR 1
94			LP40442-001A	DIRECT GEAR
95			LP40483-002A	COMPRESSION SPRING
96			LP30016-001A	SLIT WASHER
99			LP40554-001A	COMPRESSION SPRING
100			LP40484-001H	CHANGE LEVER ASSY
101			LP40512-002B	COMRESSION SPRING
102			LP30236-002B	IDLER LEVER
103			LP40420-001A	REEL DISK (SUPPLY)
104			LP40421-001A	REEL DISK (TAKE-UP)
105			LP30017-015A	SPACER,X2
106			QSW0554-003	ROTARY ENCODER
107			QYTPST2620Z	SCREW,ROTARY ENCODER
109			LP30017-019A	SPACER,C.GEAR 1
110			LP30237-002B	CASSETTE GEAR
111			LP30239-002G	LIMIT GEAR(1)
112			LP30240-002G	LIMIT GEAR(2)
113			LP40136-001E	TORSION SPRING
114			LP30242-002A	RELAY GEAR
115			LP30339-002E	OPENER GUIDE
116			LP40214-001B	C.H.BRACKET
117			PQM30017-47	SLIT WASHER,X2
118			LP30243-001D	DRIVE GEAR
119			LP20240-001D	DRIVE ARM
120			LP40137-001A	TORSION SPRING
121			LP10081-002L	SIDE HOLDER(L)
122			LP10082-002M	SIDE HOLDER(R)
123			LP30255-006A	LOCK LEVER(L)
124			LP30256-001H	LOCK LEVER(R)
125			LP40168-001A	TORSION SPRING(L)
126			LP40218-001B	TORSION SPRING(R)
127			LP30257-001F	CASSETTE HOLDER
128			LP30244-002G	GUIDE RAIL
129			LP30245-002E	REC SAFETY LEVER
130			LP30003-004A	TENSION SPRING
131			LP20578-001C	TOP GUIDE
132			LP30500-001C	HOLD PLATE
133			LP40450-003A	PAD,X2 HOLD PLATE
134			LP30003-025B	TENSION SPRING
135			LP30003-024A	TENSION SPRING
136			LP40481-003A	ROLLER CAM ASSY
137			LP30019-014A	PAD,X2 CASSETTE HOLDER
138			LP40545-001A	TORSION SPRING,OPENER GUIDE
151			LP20324-003A	DOOR OPENER

5.4 ELECTRICAL PARTS LIST

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
**********				
			MAIN BOARD ASSEMBLY <03>	
		PW1	LPA10089-01B1	MAIN BOARD ASSY,S4800U/U(C)
			LPA10089-02B1	MAIN BOARD ASSY,S3800U/U(C)
		IC1	JCP8022-NSC	IC
		IC501	JCP8018	IC
		IC3001	MN101D02HJP	IC
			or MN101DP02JAFJP	IC
		IC3002	BA6956AN	IC
		IC3003	S-80823ANUP-W	IC
		IC3004	M24C04-BN6	IC
			or AT24C04-10PC	IC
			or 24LC04B/P	IC
		IC5101	STR-G6532	IC
		IC5301	LA5644	IC
		IC7001	M35500BGP	IC
			or M35500AGP	IC
		IC7002	GP1U291Q	IR DETECT UNIT
			or PNA4652M00YC	IR DETECT UNIT
		Q1	2SC4081/S/-X	TRANSISTOR,S3800U/U(C)
		Q2	2SC4081/S/-X	TRANSISTOR,S3800U/U(C)
		Q3	2SC4081/S/-X	TRANSISTOR,S3800U/U(C)
		Q4	2SC4081/S/-X	TRANSISTOR,S3800U/U(C)
		Q5	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q7	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q8	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q9	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q12	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q17	UN521E	TRANSISTOR
			or RN1309	TRANSISTOR
			or DTC144WU	TRANSISTOR
		Q21	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q33	UN521E	TRANSISTOR
			or RN1309	TRANSISTOR
			or DTC144WU	TRANSISTOR
		Q38	2PC4081/R/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
		Q45	2SA1576A/S/-X	TRANSISTOR
		Q401	2SA1576A/QR/-X	TRANSISTOR,S4800U/U(C)
		Q402	2SA1576A/QR/-X	TRANSISTOR,S4800U/U(C)
		Q403	UN521E	TRANSISTOR,S4800U/U(C)
			or DTC144WU	TRANSISTOR,S4800U/U(C)
			or RN1309	TRANSISTOR,S4800U/U(C)
		Q404	UN521E	TRANSISTOR,S4800U/U(C)
			or DTC144WU	TRANSISTOR,S4800U/U(C)
			or RN1309	TRANSISTOR,S4800U/U(C)
		Q405	2SA1576A/QR/-X	TRANSISTOR,S4800U/U(C)
		Q901	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q903	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q904	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q2001	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q2002	2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q2003	DTA144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or RN2309	TRANSISTOR
			or UN511E	TRANSISTOR
		Q2051	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q2052	2SA1576A/QR/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q2053	DTC144WU	TRANSISTOR
			or PDTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q2054	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
		Q2055	DTC144WU	TRANSISTOR
			or PDTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q2061	2SC4081/QRS/-X	TRANSISTOR,S4800U/U(C)
			or 2SD1819A/QRS/-X	TRANSISTOR,S4800U/U(C)
			or 2PC4081/R/-X	TRANSISTOR,S4800U/U(C)
		Q2062	2SA1576A/QR/-X	TRANSISTOR,S4800U/U(C)
			or 2PA1576/R/-X	TRANSISTOR,S4800U/U(C)
			or 2SB1218A/QR/-X	TRANSISTOR,S4800U/U(C)
		Q2063	DTC144WU	TRANSISTOR,S4800U/U(C)
			or PDTC144WU	TRANSISTOR,S4800U/U(C)
			or RN1309	TRANSISTOR,S4800U/U(C)
			or UN521E	TRANSISTOR,S4800U/U(C)
		Q2251	DTA144WU	TRANSISTOR
			or PDTA144WU	TRANSISTOR
			or RN2309	TRANSISTOR
			or UN511E	TRANSISTOR
		Q3001	PTZ-NV16	PHOTO TRANSISTOR
			or PTZ-NV16A	PHOTO TRANSISTOR
		Q3002	PTZ-NV16	PHOTO TRANSISTOR
			or PTZ-NV16A	PHOTO TRANSISTOR
		Q3003	2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q3004	2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q3005	UN521K	TRANSISTOR
			or DTC114WU	TRANSISTOR
		Q4001	UN5211	TRANSISTOR
			or RN1302	TRANSISTOR
			or DTC114EU	TRANSISTOR
			or PDTC114EU	TRANSISTOR
		Q4002	2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
		Q6501	DTC143TU	TRANSISTOR

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		Q6502	DTC143TU	TRANSISTOR
		Q6551	2SC1740S/QRS/-T	TRANSISTOR
			or 2SC3199/YG/-T	TRANSISTOR
		Q7201	2SA720/RS/-T	TRANSISTOR
		D1	1SS133	DIODE
			or 1SS270A	DIODE
		D2	1SS133	DIODE
			or 1SS270A	DIODE
		D2201	11ES2	DIODE
		D2202	MTZJ9.1B	ZENER DIODE
		D3001	LNB2301L01VI	LE DIODE
		D3002	1SS133	DIODE
			or 1SS270A	DIODE
		D3004	11ES2	DIODE
		D3005	11ES2	DIODE
		D3006	RD33ES/B2/-T2	ZENER DIODE
			or MTZJ33B	ZENER DIODE
		D3007	1SS355	DIODE
		D3013	DA204U	DIODE
		D3015	DAN202U	DIODE
		D4003	1SS133	DIODE
			or 1SS270A	DIODE
		D5001	S1WB(A)60F4102	BRIDGE DIODE
			or S1WB(A)60F4072X	BRIDGE DIODE
			or S1WB(A)60F4062X	BRIDGE DIODE
		D5101	AU01	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS4	FR DIODE
			or ERA18-04-T2	FR DIODE
		D5102	AU01	FR DIODE
			or ERA18-04-T2	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS4	FR DIODE
		D5103	AU01Z	FR DIODE
			or ERA18-02-T2	FR DIODE
			or PG104RS	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS2	FR DIODE
		D5201	AU01Z	FR DIODE
			or 10ELS2	FR DIODE
		D5203	AU01Z	FR DIODE
			or ERA18-02-T2	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS2	FR DIODE
			or PG104RS	FR DIODE
		D5204	AU01Z	FR DIODE
			or ERA18-02-T2	FR DIODE
			or PG104RS	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS2	FR DIODE
		D5205	AU01Z	FR DIODE
			or ERA18-02-T2	FR DIODE
			or 10ELS2	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or PG104RS	FR DIODE
		D5206	FMB-24	BARRIER DIODE
			or FSQ05A04B	SB DIODE
			or YG801C04	SB DIODE
			or MA7D49	SB DIODE
		D5210	AU01Z	FR DIODE
			or ERA18-02-T2	FR DIODE
			or 10ELS2	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or PG104RS	FR DIODE
		D5211	AU01Z	FR DIODE
			or ERA18-02-T2	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS2	FR DIODE
			or PG104RS	FR DIODE
		D5301	MTZJ15A	ZENER DIODE
			or RD15ES/B1/-T2	ZENER DIODE
		D5302	MTZJ6.8A	ZENER DIODE
			or RD6.8ES/B1/-T2	ZENER DIODE
		D5303	MTZJ27C	ZENER DIODE
			or RD27ES/B3/-T2	ZENER DIODE
		D5304	1SS133	DIODE
			or 1SS270A	DIODE
		D6002	HZ30-2L-T2	ZENER DIODE
			or HZ30-2LTD	Z DIODE (M)
		D6551	MTZJ10B	ZENER DIODE
		D7002	RD9.1ES/B2/-T2	ZENER DIODE
			or MTZJ9.1B	ZENER DIODE
			or UZ9.1BSB	ZENER DIODE
		D7004	1SS133	DIODE
			or 1SS270A	DIODE
		D7006	1SS133	DIODE
			or 1SS270A	DIODE
		D7009	SLR-325MC-T	LE DIODE
		R1	NRVA02D-622X	CMF RESISTOR 6.2kΩ,1/10W
		R2	NRVA02D-152X	CMF RESISTOR 1.5kΩ,1/10W
		R3	NRSA02J-182X	MG RESISTOR 1.8kΩ,1/10W
		R6	NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W
		R7	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		R8	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		R9	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		R12	QRE141J-0R0Y	RESISTOR 0Ω,1/4W
		R21	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		R22	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		R23	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		R25	NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
		R26	NRSA02J-822X	MG RESISTOR 8.2kΩ,1/10W
		R27	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		R28	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		R29	NRSA02J-222X	MG RESISTOR 2.2kΩ,1/10W
		R30	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		R31	NRSA02J-152X	MG RESISTOR 1.5kΩ,1/10W
		R32	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		R34	NRSA02J-563X	MG RESISTOR 56kΩ,1/10W
		R36	NRSA02J-182X	MG RESISTOR 1.8kΩ,1/10W
		R39	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		R42	NRSA02J-681X	MG RESISTOR 680Ω,1/10W
		R44	NRSA02J-223X	MG RESISTOR 22kΩ,1/10W
		R45	NRSA02J-333X	MG RESISTOR 33kΩ,1/10W
		R46	NRSA02J-471X	MG RESISTOR 470Ω,1/10W
		R48	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		R68	NRSA02J-222X	MG RESISTOR 2.2kΩ,1/10W
		R77	QRE141J-103Y	RESISTOR 10kΩ,1/4W
		R90	NRSA02J-471X	MG RESISTOR 470Ω,1/10W
		R92	NRSA02J-392X	MG RESISTOR 3.9kΩ,1/10W
		R93	NRSA02J-222X	MG RESISTOR 2.2kΩ,1/10W
		R104	NRSA02J-562X	MG RESISTOR 5.6kΩ,1/10W
		R110	NRSA02J-681X	MG RESISTOR 680Ω,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R111	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R201	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R202	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R401	NRSA02J-221X	MG RESISTOR,S4800U/U(C)	220Ω,1/10W
		R402	NRSA02J-102X	MG RESISTOR,S4800U/U(C)	1kΩ,1/10W
		R403	NRSA02J-681X	MG RESISTOR,S4800U/U(C)	680Ω,1/10W
		R404	NRSA02J-473X	MG RESISTOR,S4800U/U(C)	47kΩ,1/10W
		R405	NRSA02J-683X	MG RESISTOR,S4800U/U(C)	68kΩ,1/10W
		R406	NRSA02J-393X	MG RESISTOR,S4800U/U(C)	39kΩ,1/10W
		R407	NRSA02J-472X	MG RESISTOR,S4800U/U(C)	4.7kΩ,1/10W
		R408	NRSA02J-473X	MG RESISTOR,S4800U/U(C)	47kΩ,1/10W
		R503	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R525	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R901	NRSA02J-820X	MG RESISTOR	82Ω,1/10W
		R904	QRE123J-331X	RESISTOR	330Ω,1/2W
		R905	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R911	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R912	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R914	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R915	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R916	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R917	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R919	QRE123J-331X	RESISTOR	330Ω,1/2W
		R920	QRE141J-101Y	RESISTOR	100Ω,1/4W
		R921	QRE141J-101Y	RESISTOR	100Ω,1/4W
		R922	QRE123J-331X	RESISTOR	330Ω,1/2W
		R924	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R925	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R2001	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2003	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2004	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R2005	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R2006	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R2007	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R2009	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R2010	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R2012	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R2013	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2014	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
		R2015	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
		R2016	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2017	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R2018	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2019	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2053	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2054	NRSA02J-123X	MG RESISTOR,S3800U/U(C)	12kΩ,1/10W
			NRSA02J-153X	MG RESISTOR,S4800U/U(C)	15kΩ,1/10W
		R2055	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
		R2056	QRE141J-101Y	RESISTOR,S4800U/U(C)	100Ω,1/4W
			QRE141J-820Y	RESISTOR,S3800U/U(C)	82Ω,1/4W
		R2057	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2058	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2059	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2060	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2061	NRSA02J-273X	MG RESISTOR,S4800U/U(C)	27kΩ,1/10W
		R2062	NRSA02J-3R3X	MG RESISTOR,S4800U/U(C)	3.3Ω,1/10W
		R2063	NRSA02J-151X	MG RESISTOR,S4800U/U(C)	150Ω,1/10W
		R2064	NRSA02J-473X	MG RESISTOR,S4800U/U(C)	47kΩ,1/10W
		R2065	NRSA02J-183X	MG RESISTOR,S4800U/U(C)	18kΩ,1/10W
		R2201	NRSA02J-680X	MG RESISTOR	68Ω,1/10W
		R2206	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2207	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R2217	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R2218	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R2219	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R2223	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R2224	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R2232	NRSA02J-680X	MG RESISTOR	68Ω,1/10W
		R2251	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R2601	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2603	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2604	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R3001	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3003	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3005	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3007	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3008	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3009	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3012	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3013	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3014	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3015	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3016	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3017	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R3018	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R3019	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3021	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3022	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3026	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3027	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3028	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3030	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3031	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3035	QRE141J-102Y	RESISTOR	1kΩ,1/4W
		R3043	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3046	QRE141J-102Y	RESISTOR	1kΩ,1/4W
		R3058	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3059	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3060	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3064	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3079	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3080	NRSA02J-0R0X	MG RESISTOR,S4800U/U(C)	0Ω,1/10W
		R3081	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3082	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3083	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3084	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3085	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3086	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3090	QRE141J-102Y	RESISTOR	1kΩ,1/4W
		R3094	QRE141J-102Y	RESISTOR	1kΩ,1/4W
		R3095	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3096	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3097	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3098	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3099	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3100	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3201	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3202	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3203	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3204	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R3205	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R3206	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3207	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3208	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3209	QRE141J-181Y	RESISTOR	180Ω,1/4W
		R3210	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R3211	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R3212	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
		R3213	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
		R3214	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
		R3215	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
		R3216	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W
		R3217	NRSA02J-334X	MG RESISTOR	330kΩ,1/10W
		R3218	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3219	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3220	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3222	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3223	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
		R3224	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R3226	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3227	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3232	QRE141J-104Y	RESISTOR	100kΩ,1/4W
		R3233	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3234	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3236	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3237	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
		R3238	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
		R3240	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3241	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4001	QRE141J-222Y	RESISTOR	2.2kΩ,1/4W
		R4002	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
		R4003	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R4006	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
		R4010	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R4011	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R4012	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R4013	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R4018	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4019	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R4020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R4021	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4022	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R4024	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4025	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	⚠	R5001	QRZ9046-475Z	RESISTOR	4.7MΩ,1/2W
		R5101	QRG02GJ-104	OMF RESISTOR	100kΩ,2W
		R5102	QRE141J-300Y	RESISTOR	30Ω,1/4W
		R5103	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
		R5104	QRG02GJ-683	OMF RESISTOR	68kΩ,2W
		R5105	QRT01DJ-R47X	MF RESISTOR	0.47Ω,1W
		R5106	QRE141J-562Y	RESISTOR	5.6kΩ,1/4W
		R5302	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R5303	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
	⚠	R5304	QRZ9005-221X	FUSI RESISTOR	220Ω,1/4W
		R5305	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R5306	NRSA02J-563X	MG RESISTOR	56kΩ,1/10W
		R5327	NRSA02J-303X	MG RESISTOR	30kΩ,1/10W
		R6020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6022	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6031	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6032	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R6050	QRE141J-330Y	RESISTOR	33Ω,1/4W
		R6053	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6508	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6510	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6551	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
		R6552	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7001	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7002	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7003	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7004	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7005	QRE141J-103Y	RESISTOR	10kΩ,1/4W
		R7006	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7007	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7008	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7013	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7014	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R7017	QRE141J-103Y	RESISTOR	10kΩ,1/4W
		R7020	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7021	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R7022	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
		R7023	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R7024	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
		R7025	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R7030	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7031	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R7032	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
		R7033	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R7034	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
		R7035	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R7036	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R7037	NRSA02J-563X	MG RESISTOR	56kΩ,1/10W
		R7040	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R7202	QRE141J-471Y	RESISTOR	470Ω,1/4W
		R7203	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R7204	QRE123J-100X	RESISTOR	10Ω,1/2W
		C1	NCB21HK-103X	CAPACITOR,S3800U/U(C)	0.01μF,50V
			NCF21CZ-105X	CAPACITOR,S4800U/U(C)	1μF,16V
		C2	NCB21HK-103X	CAPACITOR,S3800U/U(C)	0.01μF,50V
			NCF21CZ-105X	CAPACITOR,S4800U/U(C)	1μF,16V
		C3	NCB21HK-103X	CAPACITOR,S3800U/U(C)	0.01μF,50V
			NCF21CZ-105X	CAPACITOR,S4800U/U(C)	1μF,16V
		C4	NCB21HK-103X	CAPACITOR,S3800U/U(C)	0.01μF,50V
			NCF21CZ-105X	CAPACITOR,S4800U/U(C)	1μF,16V
		C5	QEKJ1CM-476	E CAPACITOR	47μF,16V
		C6	NCB11EK-104X	CAPACITOR	0.1μF,25V
		C8	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C9	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C10	NDC21HG-151X	CAPACITOR	150pF,50V
		C11	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C12	NDC21HJ-100X	CAPACITOR	10pF,50V
		C14	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C15	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C16	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C17	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
		C18	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C19	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C20	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C21	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C22	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C23	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C24	NCB21EK-104X	CAPACITOR	0.1μF,25V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C25	NDC21HJ-4R0X	CAPACITOR	4pF,50V
		C26	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C27	NCB21HK-223X	CAPACITOR	0.022µF,50V
		C28	QEKJ1HM-335	E CAPACITOR	3.3µF,50V
		C29	NCB21HK-472X	CAPACITOR	0.0047µF,50V
		C30	QEKJ1HM-474	E CAPACITOR	0.47µF,50V
		C31	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
		C32	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C33	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
		C34	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C35	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C36	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C37	QEKJ1HM-105	E CAPACITOR	1µF,50V
		C38	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
		C39	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C40	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C54	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C57	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C58	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C59	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C60	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
		C61	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C63	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C64	NDC21HJ-120X	CAPACITOR	12pF,50V
		C69	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C70	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C71	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C72	NDC21HJ-470X	CAPACITOR	47pF,50V
		C73	NDC21HJ-100X	CAPACITOR	10pF,50V
		C74	NDC21HJ-120X	CAPACITOR	12pF,50V
		C77	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C80	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C84	NDC21HJ-220X	CAPACITOR	22pF,50V
		C106	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C109	NCB21EK-223X	CAPACITOR	0.022µF,25V
		C110	NCB21HK-331X	CAPACITOR	330pF,50V
		C128	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		C201	QEKJ0JM-107	E CAPACITOR	100µF,6.3V
		C202	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C203	QEKJ1HM-105	E CAPACITOR	1µF,50V
		C205	NDC21HJ-101X	CAPACITOR	100pF,50V
		C207	NCF21CZ-105X	CAPACITOR	1µF,16V
		C220	NDC21HJ-101X	CAPACITOR	100pF,50V
		C401	NCB21HK-103X	CAPACITOR,S4800U/U(C)	0.01µF,50V
		C402	NCB21HK-223X	CAPACITOR,S4800U/U(C)	0.022µF,50V
		C403	NDC21HJ-151X	CAPACITOR,S4800U/U(C)	150pF,50V
		C404	NDC21HJ-180X	CAPACITOR,S4800U/U(C)	18pF,50V
		C405	NDC21HJ-220X	CAPACITOR,S4800U/U(C)	22pF,50V
		C406	NCS21HJ-681X	CAPACITOR,S4800U/U(C)	680pF,50V
		C407	NDC21HJ-220X	CAPACITOR,S4800U/U(C)	22pF,50V
		C408	NCB21HK-103X	CAPACITOR,S4800U/U(C)	0.01µF,50V
		C501	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
		C502	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C503	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
		C504	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C505	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C506	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C507	QEKJ0JM-227	E CAPACITOR	220µF,6.3V
		C508	QEQF1HM-474	NP E CAPACITOR	0.47µF,50V
		C509	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C510	QEKJ0JM-227	E CAPACITOR	220µF,6.3V
		C511	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C512	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C513	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C514	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C515	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C516	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C517	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C518	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C519	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
		C520	QERF1EM-475	E CAPACITOR	4.7µF,25V
		C535	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C551	QEKJ1HM-105	E CAPACITOR	1µF,50V
		C553	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C557	QERF1HM-105	E CAPACITOR	1µF,50V
		C559	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C560	QERF1HM-105	E CAPACITOR	1µF,50V
		C563	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C565	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C567	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C901	QETN0JM-477	E CAPACITOR	470µF,6.3V
		C903	QEKJ1CM-107	E CAPACITOR	100µF,16V
		C904	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C911	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		C912	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C913	QETN0JM-477	E CAPACITOR	470µF,6.3V
		C914	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		C2001	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C2002	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C2003	QEKC0JM-476	E CAPACITOR	47µF,6.3V
		C2005	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C2006	NCB21HK-123X	CAPACITOR	0.012µF,50V
		C2007	QEKJ1CM-226	E CAPACITOR	22µF,16V
		C2008	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C2009	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C2010	NCB21HK-222X	CAPACITOR	0.0022µF,50V
		C2011	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C2012	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C2051	NCB21HK-331X	CAPACITOR	330pF,50V
		C2052	QFV91HJ-333	F CAPACITOR,S4800U/U(C)	0.033µF,50V
			QFV91HJ-823	F CAPACITOR,S3800U/U(C)	0.082µF,50V
		C2053	NCB21HK-472X	CAPACITOR,S3800U/U(C)	0.0047µF,50V
			NCB21HK-332X	CAPACITOR,S4800U/U(C)	0.0033µF,50V
		C2054	NCB21HK-103X	CAPACITOR,S4800U/U(C)	0.01µF,50V
			NCB21HK-223X	CAPACITOR,S3800U/U(C)	0.022µF,50V
		C2055	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C2061	QFV91HJ-333	F CAPACITOR,S4800U/U(C)	0.033µF,50V
		C2062	NCB21HK-332X	CAPACITOR,S4800U/U(C)	0.0033µF,50V
		C2063	NCB21HK-103X	CAPACITOR,S4800U/U(C)	0.01µF,50V
		C2064	QEKJ1CM-106	E CAPACITOR,S4800U/U(C)	10µF,16V
		C2201	NCB21CK-104X	CAPACITOR	0.1µF,16V
		C2202	NCB21EK-333X	CAPACITOR	0.033µF,25V
		C2203	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C2204	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C2205	QEKJ1HM-105	E CAPACITOR	1µF,50V
		C2206	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C2207	QEKJ1CM-476	E CAPACITOR	47µF,16V
		C2208	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C2215	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C2216	QEKJ1HM-474	E CAPACITOR	0.47µF,50V
		C2217	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C2218	QEKJ1HM-474	E CAPACITOR	0.47µF,50V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C2219	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C2220	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C2221	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C2222	QEKJ1HM-474	E CAPACITOR	0.47µF,50V
		C2223	QEKJ1HM-474	E CAPACITOR	0.47µF,50V
		C2224	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C2225	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C2226	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C2227	NCB21CK-104X	CAPACITOR	0.1µF,16V
		C2251	QEKC0JM-476	E CAPACITOR	47µF,6.3V
		C2252	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C2253	NCB21CK-104X	CAPACITOR	0.1µF,16V
		C2254	NCB21CK-104X	CAPACITOR	0.1µF,16V
		C3001	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C3002	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C3003	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C3008	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C3013	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C3016	NDC21HJ-180X	CAPACITOR	18pF,50V
		C3017	NDC21HJ-220X	CAPACITOR	22pF,50V
		C3019	NDC21HJ-180X	CAPACITOR	18pF,50V
		C3020	NDC21HJ-180X	CAPACITOR	18pF,50V
		C3022	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C3023	NCF21CZ-105X	CAPACITOR	1µF,16V
		C3024	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
		C3025	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C3028	QETN0JM-108	E CAPACITOR	1000µF,6.3V
		C3029	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C3030	QEKJ0JM-227	E CAPACITOR	220µF,6.3V
		C3035	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C3036	QERF0JM-107	E CAPACITOR	100µF,6.3V
		C3048	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C3049	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C4001	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C4002	QERF1HM-224	E CAPACITOR	0.22µF,50V
		C4004	QERF1AM-336	E CAPACITOR	33µF,10V
		C4006	NCB21EK-563X	CAPACITOR	0.056µF,25V
		C4007	NCB21HJ-103X	CAPACITOR	0.01µF,50V
		C4008	QERF0JM-476	E CAPACITOR	47µF,6.3V
		C4009	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C4010	QERF0JM-476	E CAPACITOR	47µF,6.3V
		C4011	NCB21CK-224X	CAPACITOR	0.22µF,16V
		C4012	NDC21HJ-471X	CAPACITOR	470pF,50V
		C4014	NDC21HJ-101X	CAPACITOR	100pF,50V
		C4015	NDC21HJ-101X	CAPACITOR	100pF,50V
		C4016	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
		C4017	NCB21HJ-103X	CAPACITOR	0.01µF,50V
		C4019	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C4022	NDC21HJ-101X	CAPACITOR	100pF,50V
	⚠	C5001	QFZ9072-683	F CAPACITOR	0.068µF,275V
	⚠	C5004	QCZ9094-472	CAPACITOR	0.0047µF,250V
		C5006	QETM2DM-157	E CAPACITOR	150µF,200V
		C5101	QCZ0212-472	CAPACITOR	0.0047µF,1kV
		C5102	QEMT1VM-276	E CAPACITOR	27µF,35V
		C5103	QCZ0302-470Z	CAPACITOR	47pF,1kV
		C5104	QFLC1HJ-471Z	F CAPACITOR	470pF,50V
		C5107	QCZ0136-101Z	CAPACITOR	100pF,1kV
		C5201	QEMU0JM-227	E CAPACITOR	220µF,6.3V
		C5202	QEMT1CM-827	E CAPACITOR	820µF,16V
		C5203	QEMT1AM-128	E CAPACITOR	1200µF,10V
		C5204	QETN2AM-475	E CAPACITOR	4.7µF,100V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C5205	QETN1HM-106	E CAPACITOR	10µF,50V
		C5207	QETN1CM-227	E CAPACITOR	220µF,16V
		C5208	QETN1AM-227	E CAPACITOR	220µF,10V
		C5301	QEMU0JM-227	E CAPACITOR	220µF,6.3V
		C5302	QETC1HM-106	E CAPACITOR	10µF,50V
		C5303	QETN1CM-107	E CAPACITOR	100µF,16V
		C5304	QFVF1HJ-124Z	F CAPACITOR	0.12µF,50V
		C5305	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C5310	QFLC1HJ-183Z	F CAPACITOR	0.018µF,50V
		C6013	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C7001	QDGB1HK-102Y	CAPACITOR	0.001µF,50V
		C7002	QEKJ1HM-106	E CAPACITOR	10µF,50V
		C7007	QEKJ0JM-107	E CAPACITOR	100µF,6.3V
		C7008	NCB21EK-223X	CAPACITOR	0.022µF,25V
		C7009	NDC21HJ-220X	CAPACITOR	22pF,50V
		C7010	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C7011	QEKJ1HM-106	E CAPACITOR	10µF,50V
		C7206	QEKJ0JM-227	E CAPACITOR	220µF,6.3V
		L1	QQL29BJ-100Z	COIL	10µH
		L2	QQL29BJ-680Z	COIL	68µH
		L3	QQL29BJ-100Z	COIL	10µH
		L4	QQL29BJ-100Z	COIL	10µH
		L5	QQL29BJ-100Z	COIL	10µH
		L11	QQLZ011-120Z	COIL	12µH
		L13	QQL231J-101Y	COIL	100µH
		L15	QQL29BJ-100Z	COIL	10µH
		L19	QQL29BJ-100Z	COIL	10µH
		L24	QQL231J-180Y	COIL	18µH
		L28	QQL231J-150Y	COIL	15µH
		L201	QQL29BJ-100Z	COIL	10µH
		L203	QQL231J-3R3Y	COIL	3.3µH
		L401	QQL231J-150Y	COIL,S4800U/U(C)	15µH
		L501	QQL29BJ-100Z	COIL	10µH
		L503	QQL29BJ-100Z	COIL	10µH
		L901	QQL29BJ-101Z	COIL	100µH
		L2251	QQL29BJ-100Z	COIL	10µH
		L5201	PELN1184	COIL	33µH
		L5202	PELN1184	COIL	33µH
		L5301	QQL01BJ-101Z	COIL	100µH
		L6003	QQL29BJ-100Z	COIL	10µH
		L7201	QQL29BJ-101Z	COIL	100µH
		X2	QAX0575-001	CRYSTAL RESONATOR	
		X3001	QAX0526-001	CRYSTAL RESONATOR	
		X3002	QAX0444-001	CRYSTAL RESONATOR	
		S3001	QSW0602-004	PUSH SWITCH,REC SAFETY	
		S3002	QSW0695-001	PUSH SWITCH,S CASSETTE	
		S6050	QSW0460-001	SLIDE SWITCH	
		S7001	QSW0456-002Z	TACT SWITCH,POWER	
		S7002	QSW0456-002Z	TACT SWITCH,REVIEW	
		S7004	QSW0456-002Z	TACT SWITCH,CH-	
		S7006	QSW0456-002Z	TACT SWITCH,CH+	
		S7008	QSW0456-002Z	TACT SWITCH,MENU	
		S7010	QSW0456-002Z	TACT SWITCH,OK	
		S7011	QSW0456-002Z	TACT SWITCH,REC	
		S7013	QSW0456-002Z	TACT SWITCH,STOP/EJECT	
		S7015	QSW0456-002Z	TACT SWITCH,PAUSE	
		S7016	QSW0456-002Z	TACT SWITCH,S VHS ET	
		K2251	NQR0007-001X	FERRITE BEAD	
		K2252	NQR0007-001X	FERRITE BEAD	
		K2253	NQR0007-001X	FERRITE BEAD	
		K5101	QQR0678-001Z	FERRITE BEAD	

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		K5102	QQR0678-001Z	FERRITE BEAD
		PC3001	GP3S123	IC(PHOTO SENSOR
		PC3002	GP3S123	IC(PHOTO SENSOR
	⚠	PC5101	PS2501-1	PH COUPLER
		T2051	PELN0832	OSC TRANSFORMER,S3800U/U(C)
			PELN0860	OSC TRANSFORMER,S4800U/U(C)
		T2052	PELN0861	OSC TRANSFORMER,S4800U/U(C)
	⚠	T5001	QQS0051-001	SW TRANSFORMER
		TU6001	QAU0163-001	TUNER
		ET1	PQ21623-2-5	EARTH PLATE(RF)
		DI7001	QLF0031-001	FL TUBE
		HD1	PQ35479-1-4	HOLDER(FDP)
		SD1	LP30644-001A	SHIELD CASE(PRE)
		OT1	QYTDSF3010M	SCREW,X2 S JACK
		J1	QNN0285-002	PIN JACK,REAR1 IN
		J2	QNN0286-002	PIN JACK,REAR OUT
		J4	QND0076-001	S JACK,REAR_S_IN
		J5	QND0076-001	S JACK,S_OUT
	⚠	TB1	LP20887-002A	TERMINAL BOARD
		WR503	QUQ112-1318CG	FFC WIRE,CN503_CN504
		FC5001	QNG0006-001Z	FUSE CLIP
		FC5002	QNG0006-001Z	FUSE CLIP
		FW3001	QUM022-13A4A4	PARA RIBON WIRE
		FW3002	QUM022-30A4A4	PARA RIBON WIRE
		J7101	QNN0288-001	PIN JACK,FRONT IN
	⚠	LF5002	QQR0532-001	LINE FILTER
	⚠	SG5001	QAF0046-242Z	SURGE ABSORBER
	⚠	VA5001	QAF0023-431Z	VARISTOR
	⚠	VA5002	QAF0023-431Z	VARISTOR
		CN1	QGF1028C1-11	FPC CONNECTOR,(1-11)DRUM FPC,S3800U/U(C)
			QGF1028C1-13	FPC CONNECTOR,(1-13)DRUM FPC,S4800U/U(C)
		CN503	QGF1207C1-13	FPC CONNECTOR,(1-13)
		CN504	QGF1207C1-13	FPC CONNECTOR,(1-13)
		CN2001	QGF1207C1-07	FPC CONNECTOR,(1-7)A/C HEAD
		CN2002	QGB2532J1-02	CONNECTOR,(1-2)FE HEAD
		CN3001	QGB2015M2-08	CONNECTOR,(1-8)
		CN3002	QGF1207C1-05	FPC CONNECTOR,(1-5)DRUM MDA
		CN3003	QGB2532J1-02	CONNECTOR,(1-2)L.MOTOR
		CN3004	QGB2534J2-04	CONNECTOR,(1-4)R.ECODER
	⚠	CN5001	QGA7901C3-02	CONNECTOR,(1-2)AC IN
		CN7001	QGF1207C1-09	FPC CONNECTOR,(1-9)SHUTTLE
		CN7103	QGF1207C1-04	FPC CONNECTOR,(1-4)FRONT S JA,S4800U/U(C)
	⚠	CP4001	ICP-N25	CIRCUIT PROTECTOR
	⚠	CP5302	ICP-N25	CIRCUIT PROTECTOR
	⚠	F5001	QMF51N2-1R25J1	FUSE T1.25A,AC250V

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2D DIGITAL BOARD ASSEMBLY <05>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		PW1	LPA10090-01B	2D DIGITAL BOARD ASSY
		IC1201	JCP8027	IC
	⚠	Q1201	2SC1317/RS/-T	TRANSISTOR
		Q1202	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q1203	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q1204	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q1205	2SC4081/S/-X	TRANSISTOR
		Q1206	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		D1201	RD4.3ES/B3/-T2	ZENER DIODE
		D1202	1SS133	DIODE
		D1203	1SS133	DIODE
		R1201	NRSA02J-121X	MG RESISTOR 120Ω,1/10W
		R1202	NRSA02J-101X	MG RESISTOR 100Ω,1/10W
		R1203	NRSA02J-471X	MG RESISTOR 470Ω,1/10W
		R1204	NRSA02J-471X	MG RESISTOR 470Ω,1/10W
		R1205	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		R1206	NRSA02J-561X	MG RESISTOR 560Ω,1/10W
		R1207	NRSA02J-822X	MG RESISTOR 8.2kΩ,1/10W
		R1208	NRSA02J-123X	MG RESISTOR 12kΩ,1/10W
		R1209	NRSA02J-180X	MG RESISTOR 18Ω,1/10W
		R1210	NRSA02J-393X	MG RESISTOR 39kΩ,1/10W
		R1211	NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
		R1212	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		R1213	NRSA02J-151X	MG RESISTOR 150Ω,1/10W
		R1214	NRSA02J-181X	MG RESISTOR 180Ω,1/10W
		R1215	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		R1216	NRSA02J-151X	MG RESISTOR 150Ω,1/10W
		R1217	NRSA02J-151X	MG RESISTOR 150Ω,1/10W
		R1218	NRSA02J-301X	MG RESISTOR 300Ω,1/10W
		R1222	NRSA02J-471X	MG RESISTOR 470Ω,1/10W
		R1223	NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
		R1224	NRSA02J-561X	MG RESISTOR 560Ω,1/10W
		R1225	NRSA02J-273X	MG RESISTOR 27kΩ,1/10W
		R1226	NRSA02J-153X	MG RESISTOR 15kΩ,1/10W
		R1227	NRSA02J-561X	MG RESISTOR 560Ω,1/10W
		R1228	NRSA02J-391X	MG RESISTOR 390Ω,1/10W
		R1230	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		R1231	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		R1232	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		R1233	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		VR1201	QVZ3521-103Z	V RESISTOR,D/A LEVEL ADJ
		C1201	QEKJ1CM-336	E CAPACITOR 33μF,16V
		C1202	NCB21HK-103X	CAPACITOR 0.01μF,50V
		C1206	NDC21HJ-470X	CAPACITOR 47pF,50V
		C1207	NDC21HJ-470X	CAPACITOR 47pF,50V
		C1208	NDC21HJ-470X	CAPACITOR 47pF,50V
		C1211	QEKJ0JM-107	E CAPACITOR 100μF,6.3V
		C1212	NCB21HK-102X	CAPACITOR 0.001μF,50V
		C1213	NCF21EZ-104X	CAPACITOR 0.1μF,25V
		C1214	NCF21CZ-105X	CAPACITOR 1μF,16V
		C1215	QEKJ0JM-337	E CAPACITOR 330μF,6.3V
		C1216	NCF21EZ-104X	CAPACITOR 0.1μF,25V
		C1217	NCF21EZ-104X	CAPACITOR 0.1μF,25V
		C1218	NCF21EZ-104X	CAPACITOR 0.1μF,25V
		C1219	NCF21CZ-105X	CAPACITOR 1μF,16V
		C1220	QEKJ0JM-337	E CAPACITOR 330μF,6.3V
		C1221	NCB21HK-103X	CAPACITOR 0.01μF,50V
		C1222	NDC21HJ-151X	CAPACITOR 150pF,50V
		C1223	NDC21HJ-680X	CAPACITOR 68pF,50V
		C1224	NCB21HK-103X	CAPACITOR 0.01μF,50V
		C1225	NDC21HJ-151X	CAPACITOR 150pF,50V
		C1226	NDC21HJ-680X	CAPACITOR 68pF,50V
		C1227	NCB21EK-104X	CAPACITOR 0.1μF,25V
		C1228	QEKJ1EM-475	E CAPACITOR 4.7μF,25V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C1229	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1230	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1231	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1232	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1233	QDYB1CM-103Y	CAPACITOR	0.01µF,16V
		C1234	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1235	QEKJ0JM-337	E CAPACITOR	330µF,6.3V
		C1236	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1237	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1238	NDC21HJ-180X	CAPACITOR	18pF,50V
		C1239	NDC21HJ-560X	CAPACITOR	56pF,50V
		C1241	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1243	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1244	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C1245	NDC21HJ-150X	CAPACITOR	15pF,50V
		C1246	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
		C1248	NCB21HK-103X	CAPACITOR	0.01µF,50V
		L1202	QQL29BJ-101Z	COIL	100µH
		L1203	QQL29BJ-101Z	COIL	100µH
		L1204	QQL29BJ-101Z	COIL	100µH
		L1205	QQL071J-2R7Y	COIL	2.7µH
		L1206	QQL071J-2R7Y	COIL	2.7µH
		L1207	QQL29BJ-101Z	COIL	100µH
		L1208	QQL071J-150Y	COIL	15µH
		LC1201	QQL29BJ-100Z	COIL	10µH
		SD1	LP30706-001A	SHIELD FRAME(S-VHS)	
		SD2	LP30684-001A	SHIELD CASE(S-VHS)	
		CN1201	QGG2502K1-17	HEADER PIN	

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R.PAUSE BOARD ASSEMBLY <06>

PW2	LPA10089-01B2	R.PAUSE BOARD ASSY	
R7156	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
J7104	PU60612	MINI JACK	

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SUB EMPHA BOARD ASSEMBLY <08>

PW1	LPA10087-01A	SUB EMPH BOARD ASSY	
IC502	VC2076DP	IC	
R504	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R505	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
R506	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
R507	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
R508	NRSA02J-151X	MG RESISTOR	150Ω,1/10W
R509	NRSA02J-162X	MG RESISTOR	1.6kΩ,1/10W
R510	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W
R511	NRVA02D-471X	CMF RESISTOR	470Ω,1/10W
R512	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W
R513	NRVA02D-152X	CMF RESISTOR	1.5kΩ,1/10W
R514	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W
R515	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W
C521	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
C522	QETN1HM-225	E CAPACITOR	2.2µF,50V
C523	QETN1HM-225	E CAPACITOR	2.2µF,50V
C524	NDC21HG-301X	CAPACITOR	300pF,50V
C525	NDC21HG-301X	CAPACITOR	300pF,50V
C526	NDC21HJ-101X	CAPACITOR	100pF,50V
C527	NDC21HJ-181X	CAPACITOR	180pF,50V
C528	NDC21HG-271X	CAPACITOR	270pF,50V
C529	NDC21HG-820X	CAPACITOR	82pF,50V
C530	NDC21HG-221X	CAPACITOR	220pF,50V
C531	NDC21HG-301X	CAPACITOR	300pF,50V
C532	NDC21HG-301X	CAPACITOR	300pF,50V
C533	NCB21EK-104X	CAPACITOR	0.1µF,25V
C534	QETN0JM-477	E CAPACITOR	470µF,6.3V
L504	QQL01BJ-101Z	COIL	100µH
BK1	LP40425-001A	BRACKET(BOARD)	
CN511	QGG2502K1-06	HEADER PIN	

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AUDIO CONTROL HEAD BOARD ASSEMBLY <12>

PW1	LPA10010-01A1	A/C HEAD BOARD ASSY	
CN1	QGF1208F1-07	FPC CONNECTOR	

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DEMOD BOARD ASSEMBLY <14>

PW1	PB11076A	DEMOD BOARD ASSY	
IC1501	UPC1852AGT	IC	
	or UPC1854AGT	IC	
R1501	QRE141J-102Y	RESISTOR	1kΩ,1/4W
R1502	QRE141J-334Y	RESISTOR	330kΩ,1/4W
R1503	QRE141J-124Y	RESISTOR	120kΩ,1/4W
R1504	QRE141J-302Y	RESISTOR	3kΩ,1/4W
R1505	QRE141J-512Y	RESISTOR	5.1kΩ,1/4W
R1506	QRE141J-333Y	RESISTOR	33kΩ,1/4W
R1507	QRE141J-333Y	RESISTOR	33kΩ,1/4W
R1508	QRE141J-392Y	RESISTOR	3.9kΩ,1/4W
R1509	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W
R1510	QRE141J-392Y	RESISTOR	3.9kΩ,1/4W
R1511	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W
R1517	QRE141J-123Y	RESISTOR	12kΩ,1/4W
C1501	QETC1CM-226	E CAPACITOR	22µF,16V
C1502	QETC1HM-104	E CAPACITOR	0.1µF,50V
C1503	QETC1HM-105	E CAPACITOR	1µF,50V
C1504	QETC1HM-475	E CAPACITOR	4.7µF,50V
C1505	QETC1HM-225	E CAPACITOR	2.2µF,50V
C1506	QETC1HM-104	E CAPACITOR	0.1µF,50V
C1507	QFV11HJ-473	F CAPACITOR	0.047µF,50V
C1508	QETC1HM-474	E CAPACITOR	0.47µF,50V
C1509	QETC1HM-104	E CAPACITOR	0.1µF,50V
C1510	QETC1HM-105	E CAPACITOR	1µF,50V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C1511	QETC1HM-105	E CAPACITOR	1µF,50V
		C1512	QETC1HM-105	E CAPACITOR	1µF,50V
		C1513	QEE81CJ-335	T CAPACITOR	3.3µF,16V
		C1514	QEE81CJ-106	T CAPACITOR	10µF,16V
		C1515	QETC1HM-105	E CAPACITOR	1µF,50V
		C1516	QETC1HM-106	E CAPACITOR	10µF,50V
		C1517	QETC1HM-106	E CAPACITOR	10µF,50V
		C1518	QETC1HM-105	E CAPACITOR	1µF,50V
		C1521	QETC1HM-106	E CAPACITOR	10µF,50V
		BK1	LP40077-001A	BRACKET(BOARD)	
		CN1501	QGG2502K1-09	HEADER PIN	

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S JACK BOARD ASSEMBLY(S4800U/U(C)) <36>

	PW1	LPA20009-01B	S JACK BOARD ASSY
	J7102	QND0085-001	S JACK
	CN7108	QGF1209F1-04	FPC CONNECTOR,(1-4)MAIN

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LOADING MOTOR BOARD ASSEMBLY <55>

	PW2	LPA10010-01A2	LOADING MOTOR BOARD ASSY
	CN1	QGB2533K1-02	CONNECTOR

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SHUTTLE BOARD ASSEMBLY <85>

	PW1	LPA20006-02A	SHUTTLE BOARD ASSY
	UN7001	PESW0679	SHUTTLE SWITCH
	CN7008	QGF1209F1-09	FPC CONNECTOR(1-9)MAIN

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C.BOX BOARD ASSEMBLY <92>

	PW3	LPA10089-01B3	C.BOX BOARD ASSY	
	R7155	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	J7105	PU60612	MINI JACK	

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION

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